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MAY 1982 NUMBER 453 -- Part I

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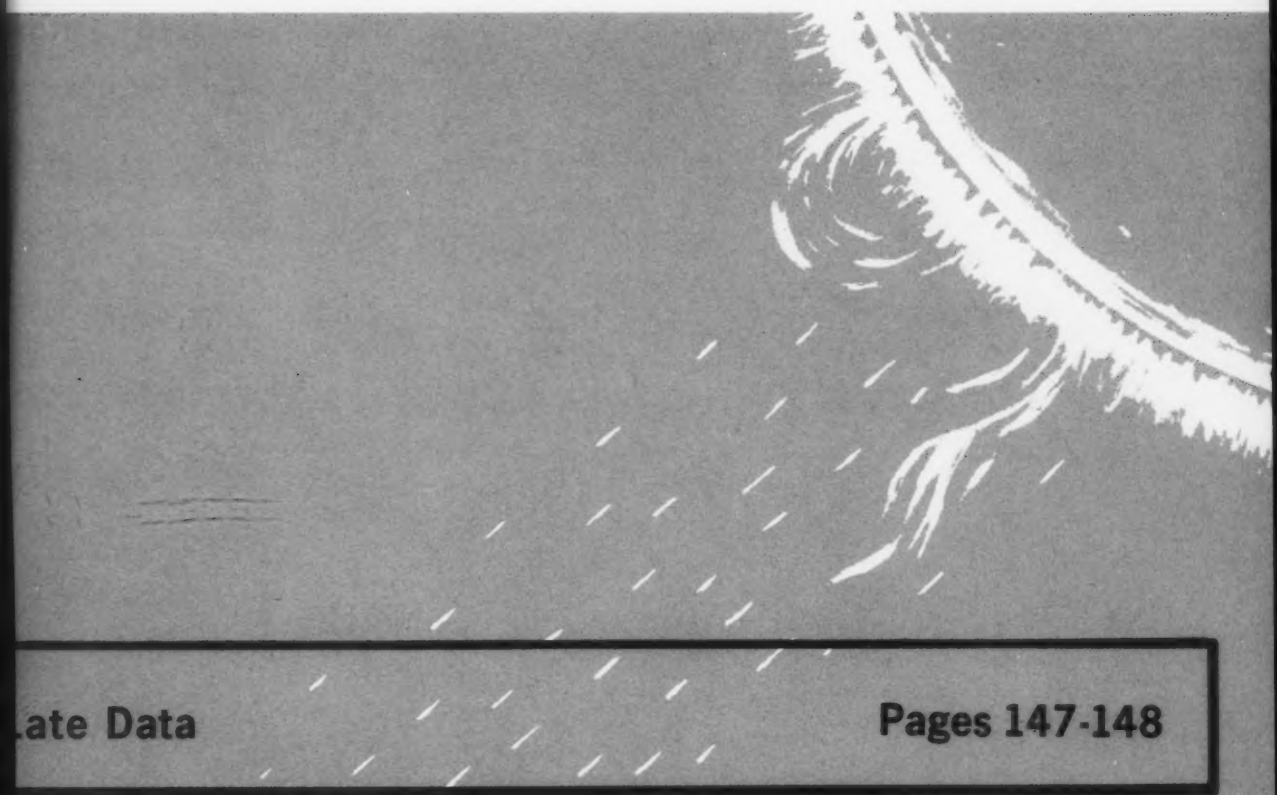
Solar-Geophysical Data prompt reports

Data for April 1982, March 1982 & Late Data
Explanation of Data Reports Issued as Number 450 (Supplement) February 1982



Late Data Pages 147-148

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Solar - Geophysical Data

NO. 453 MAY 1982

Part I (Prompt Reports)

DATA FOR
APRIL 1982
MARCH 1982

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To standardize referencing these reports in the open literature, the following format is recommended:
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SOLAR-GEOPHYSICAL DATA

No. 453

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

	PAGE
Index for 1981-1982	2
Data for April 1982	3-34
Data for March 1982	35-145
Late Data Hourly Equatorial Dst Values February 1982	147-148

Part II (Comprehensive Reports)

Index for 1981-1982	2
Data for November 1981	3-64

83 5 228AA5 2 013 1 SN 3077

DETAILED COVERAGE FOR 1980-81 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1981 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1982 Jan	Feb	Mar	Apr
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.2aa	International Provisional Relative Sunspot Numbers R_I	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11
A.2c	American Relative Sunspot Numbers Ra	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11
A.3a	Mt. Wilson Magnetograms	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	442A112	443A106	444A112	445A116	447A163	447A114	448A114	449A110	450A104	451A120	452A106	453A102	
A.3c	Kitt Peak Magnetograms	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.3d	Mean Solar Magnetic Field (Stanford)	441A 50	442A 44	443A 38	444A 46	445A 47	446A 34	447A 46	448A 44	449A 38	450A 34	451A 50	452A 42	453A 32
A.3e	Stanford Magnetograms	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.4	H-alpha Filtergrams	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.5	Calcium Plage Drawings - Mt. Wilson or Big Bear	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.5a	Calcium Plage (Mt. Wilson or Big Bear) and Sunspot Regions	442A112	443A106	444A112	445A116	447A163	447A114	448A114	449A110	450A104	451A120	452A106	453A102	
A.5b	Mt. Wilson or Big Bear Daily Calcium Plage Indices	442A127	443A119	444A122	445A129	447A175	447A128	449A172	449A127	450A118	451A135	452A118	453A113	
A.6	H-alpha Synoptic Charts	442A 48	443A 42	444A 50	445A 52	446A 38	447A 50	448A 48	449A 42	450A 38	451A 54	452A 46	453A 36	
A.6b	Synoptic Chart and Active Regions (Paris)	447B 76	448B 40	450B 66	450B 67	451B 95	452B 56							
A.6c	Stanford Solar Magnetic Field Synoptic Charts	442A 49	443A 43	444A 51	445A 53	446A 39	447A 51	448A 50	449A 44	450A 39	451A 55	452A 47	453A 37	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	442A 50	449A190	449A192	449A194	449A196	449A198	449A 46	449A 47	450A 40	451A 56	452A 48	453A 38	
A.6e	Mass Ejections from the Sun	446B 74	447B 40	448B 36	449B 64	450B 60	451B 45	452B 53	453B 64					
A.7f	Helium D3 Chromosphere (Big Bear)	---	---	443A 35	444A 43	---	446A 30	---	448A 40					
A.7g	Helium Synoptic Maps (KPNO)	449A188	449A189	449A191	449A193	449A197	449A199	449A 48	449A 49	---	451A 57	452A 49		
A.7h	Coronal Line Emission (Sac Peak)	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	452A 50	453A 40	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	441A 13	442A 11	443A 9	444A 11	445A 11	---	447A 11	448A 11	449A 11	450A 11	451A 11	452A 11	453A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	442A160	442A 27	443A 23	444A 27	445A 27	446A 20	447A 28	448A 25	449A 25	450A 23	452A162	452A 28	
A.10c	21 cm East-West Solar Scans (Fleurs)	441A 33	442A 30	443A 26	444A 30	445A 30	446A 23	447A 32	448A 28	449A 28	450A 26	451A 33	452A 31	
A.10d	43 cm East-West Solar Scans (Fleurs)	441A 34	442A 31	443A 27	444A 31	445A 31	446A 24	447A 33	448A 29	449A 29	450A 27	451A 34	452A 32	
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	441A 32	442A 29	443A 25	444A 29	445A 29	446A 22	447A 31	448A 27	449A 27	450A 25	451A 32	452A 30	453A 25
A.10f	3 cm East-West Solar Scans (Toyokawa)	441A 31	442A 28	443A 24	444A 28	445A 30	---	447A 29	448A 26	449A 26	450A 24	451A 31	452A 29	453A 24
A.10g	8 cm East-West Solar Scans (Toyokawa)						446A 21	447A 30	---	---	---	---	---	---
A.11g	Solar X-ray (SMS/GOES) (graphs)	446B 69	447B 34	448B 31	449B 58	450B 54	451B 40	452B 47	453B 59					
A.12e	Energetic Solar Particles (IMP H & J)		450B 68	449B 98	452B 60	452B 65	452B 70							
A.13d	Solar Wind from IPS Measurements	442A161	442A 39	443A 32	445A170	445A 42	447A160	447A 41	448A 38	451A166	451A169	451A 45		
A.13e	Solar Plasma (IMP H & J)	449B107	449B108											
A.13f	Solar Wind (Pioneer 12 (Venus))	442A171	442A 45	443A 39	444A 47	445A 45	446A 31	447A 43	448A 41	449A 35	450A 31	451A 51	452A 43	453A 33
A.17	Interplanetary Magnetic Field (Pioneer 12)	---	---	444A126	445A135	446A107	447A129	450A148	---	---	452A163	452A123		
A.17c	Inferred IP Magnetic Field	441A 48	442A 42	443A 36	444A 44	445A 46	446A 32	447A 44	448A 42	449A 36	450A 32	451A 48	452A 40	453A 30
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	442A156	443A150	444A148	445A166	446A140	447A156	448A154	449A164	450A144	451A162	452A158	453A144	
B.53	Quality Figures Based on Frequency Ranges	442A158	443A149	444A150	445A165	446A139	447A158	448A156	449A166	450A143	451A161	452A160	453A143	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	441A 18	442A 16	443A 15	444A 16	445A 16	446A 16	447A 16	448A 16	449A 16	450A 16	451A 16	452A 16	453A 16
C.1ba	Optical Observations Flares (Standardized Data) 1980	451B 48												
C.1d	Flare Patrol Observations	441A 30	442A 26	443A 22	444A 26	445A 26	446A 19	448A158	---	449A 24	450A 22	451A 30	452A 27	453A 23
C.1d	Flare Patrol Observations 1980	451B 92												
C.1e	Flare Indices (by day) 1980	451B 91												
C.1f	Flare Indices (by Region) 1980													
C.3	Solar Radio Waves - Outstanding Occurrences	446B 5	447B 4	448B 4	449B 4	450B 4	451B 4	452B 4	453B 4					
	Solar Radio Waves - Fixed Frequencies - Selected	441A 35	442A 32	443A 28	444A 32	445A 32	446A 25	447A 34	448A 30	449A 30	450A 28	451A 35	452A 33	453A 26
C.4a	Solar Radio Spectral Obs. (Fort Davis)	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	
C.4d	Solar Radio Spectral Obs. (Culgoora)	443A154	443A123	444A127	445A136	446A108	447A130	448A173	449A132	450A122	451A140	452A124		
C.4e	Solar Radio Spectral Obs. (Weissenau)	443A123	445A174	445A136	445A136	446A108	447A130	448A173	449A132	450A122	451A140	452A124	453A118	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122				
C.4i	Solar Radio Spectral Obs. (Bleien)	442A134	443A123	44A127	445A136	---	---	---	---	---	451A140	452A124		
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	
C.4l	Solar Radio Spectral Obs. (Palehua)	442A134	443A123	444A117	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	453A118	
C.5e	Solar X-ray (SMS/GOES) (graphs)	446B 69	447B 34	448B 31	449A 58	450B 54	451B 40	452B 47	453B59					
C.6	Sudden Ionospheric Disturbances	442A128	443A120	444A123	445A130	446A102	448159	449A168	449A128	450A119	451A136	452A119	453A114	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA													
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	443A164	443A144	444A144	445A160	446A135	447A152	448A150	449A159	450A138	451A151	452A152	453A136	
D.1ba	27-day Chart of Kp Indices	442A153	443A146	444A146	445A162	446A137	447A154	448A152	449A161	450A140	451A153	452A154	453A137	
D.1c	27-day Chart of C9	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158				
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	442A155	443A147	444A147	445A163	447A180	448A164	449A186	449A162	450A141	451A159	452A155	453A141	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	443A165	443A148	445A180	445A164	446A138	447A155	448A153	449A163	450A142	451A160	452A157	453A142	
D.1g	Equatorial Indices Dst	444A155	445A182	445A183	446A144	447A179	448A163	449A185	450A153	451A175	452A165	453A148	453A140	
D.1h	Geomagnetic Substorm Log (Boulder)	441A 51	442A 46	443A 40	444A 48	445A 4	446A 35	447A 47	448A 45	449A 39	450A 35	451A 52	452A 44	453A 34
F.	COSMIC RAYS													
F.1a	Cosmic Ray Neutron Counts (Deep River)	442A151	444A152	447A176	447A176	447A177	447A151	449A180	450A149	450A134	451A151	452A151	453A135	
F.1b	Cosmic Ray Neutron Counts (Climax)	442A151	443A141	445A178	447A176	447A177	447A151	449A180	450A149	451A172				
F.1e	Cosmic Ray Neutron Counts (Alert)	442A151	444A152	447A176	447A176	447A177	447A151	449A180	450A149	450A134	451A151	452A151	453A135	
F.1h	Cosmic Ray Neutron Counts (Thule)	442A151	443A141	444A141	445A157	446A134	447A151	448A149	449A158	450A134	451A151	452A151	453A135	
F.1i	Cosmic Ray Neutron Counts (Kiel)	442A151	443A141	444A141	445A157	447A177	447A151	448A149	450A149	450A134	451A151	452A151	453A135	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	442A151	443A141	444A141	445A157	447A177	447A151	448A149	450A149	450A134	451A151	452A151	453A135	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	443A163	443A141	445A178	447A176	447A177	447A151	449A180	450A149	451A172				
H.	MISCELLANEOUS													
H.60	IUWDS Alert Decisions	441A 5	442A 5	443A 5	444A 5	445A 5	446A 4	447A 4	448A 4	449A 5	450A 5	451A 5	452A 5	453A 5

Notes:

"441A 58" listed under 1981 Mar means that the sunspot drawings for Mar 1981 were contained in *Solar-Geophysical Data* Number 441 - Part I, beginning on page 58.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

APRIL 1982 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	5-9
Daily Solar Indices	
Relative Sunspot Numbers, R_Z or Ri, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Observed and Predicted Solar Activity Indices	12
Smoothed Observed and Predicted Sunspot Numbers	13
Graph of Observed and Predicted Sunspot Numbers	14
Graph of Superposition of Cycles 18, 19 and 20	15
Solar Flares	
H-alpha Solar Flares	16-22
Intervals of No Flare Patrol Observation	23
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay (Data not available at time of publication.)	
3 cm East-West Solar Scans - Toyokawa	24
10.7 cm East-West Solar Scans - ARO, Ottawa	25
21 cm East-West Solar Scans - Fleurs (Data not available at time of publication.)	
43 cm East-West Solar Scans - Fleurs (Data not available at time of publication.)	
Selected Fixed Frequency Events	26-29
Selected Solar Noise Bursts	29
Solar Wind Measurements	
Interplanetary Scintillations (Data not available at time of publication.)	
Coronal Holes	
Helium D3 Chromosphere (Data not available at time of publication.)	
Inferred Interplanetary Magnetic Field Polarities	30
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Chart)	31
Stanford Mean Solar Magnetic Field (Table)	32
Spacecraft Observations	
Pioneer XII (Pioneer Venus) Solar Wind	33
Geomagnetic	
Boulder Geomagnetic Substorm Log	34

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

APRIL 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc[a]	Alert Situations
091	01	31	170	185	017	S12W90	0	0	0	Presto Tenflare	01	S12W90	Q	SOLALERT 01/03
						N08W86	0	0	0	1300 Flux Units		N08W86	Q	MAGALERT 01/02
						S15W67	1	0	0	30/0522Z Duration		S15W67	Q	
						S12W49	2	0	0	68 Minutes.		S12W49	Q	
						N19W43	1	0	0	Tenflare 120 Flux		N19W43	Q	
						N11W41	17	5	0	Units 31/2213Z		N11W41	A	
						S16W27	1	0	0	Duration 7 Minutes.		S16W27	Q	
						S21W08	6	0	0			S21W08	E	
						S15W02	0	0	0			S15W02	Q	
						N18E04	4	0	0			N18E04	E	
						S18E57	0	0	0			S18E57	Q	
092	02	01	172	174	015	S15W81	0	0	0		02	S15W81	Q	SOLALERT 02/04
						S13W61	0	0	0			S13W61	Q	MAGALERT 02
						N19W56	0	0	0			N19W56	Q	
						N11W55	5	2	0			N11W55	A	
						S16W41	0	0	0			S16W41	Q	
						S21W21	0	0	0			S21W21	E	
						S16W15	0	0	0			S16W15	Q	
						N18W09	2	0	0			N18W09	E	
						S18E45	2	0	0			S18E45	Q	
						N04E70	0	0	0			N04E70	Q	
093	03	02	198	174	028	S12W76	0	0	0	Presto Soflare	03	S12W76	Q	SOLALERT 02/XX
						N19W70	0	0	0	M6/2B N09W62		N19W70	Q	MAGALERT MINOR 03/XX
						N11W68	4	1	0	02/0900Z Duration		N11W68	A	
						S16W56	1	0	0	30 Minutes		S16W56	Q	
						S07W54	0	0	0			S07W54	Q	
						S22W36	0	0	0			S22W36	Q	
						S14W27	0	0	0			S14W27	Q	
						N18W23	0	0	0			N18W23	E	
						S18E31	0	0	0			S18E31	Q	
						N09E44	0	0	0			N09E44	Q	
						N04E54	0	0	0			N04E54	Q	
						N08E80	0	0	0			N08E80	Q	
094	04	03	213	170	032	S12W89	2	1	0		04	S12W89	Q	SOLALERT 04/XX
						N18W84	0	0	0			N18W84	Q	MAGALERT MINOR 04/XX
						N11W81	5	0	0			N11W81	A	
						N16W69	0	0	0			N16W69	Q	
						S18W46	1	0	0			S18W46	Q	
						S12W40	0	0	0			S12W40	Q	
						N18W36	2	0	0			N18W36	Q	
						N10W29	0	0	0			N10W29	Q	
						S09W00	1	0	0			S09W00	Q	
						S18E17	0	0	0			S18E17	Q	
						N08E30	0	0	0			N08E30	Q	
						N04E41	0	0	0			N04E41	Q	
						S15E69	0	0	0			S15E69	Q	
						N08E72	0	0	0			N08E72	Q	
095	05	04	235	158	019	N13W92	1	0	0		05	N13W92	Q	SOLNIL
						S18W82	0	0	0			S18W82	Q	MAGALERT MINOR 05/XX
						S18W58	2	0	0			S18W58	E	
						N18W49	0	0	0			N18W49	Q	
						N12W41	0	0	0			N12W41	Q	
						S07W14	2	0	0			S07W14	Q	
						S17E03	2	0	0			S17E03	E	
						S11E12	0	0	0			S11E12	Q	
						N07E17	1	0	0			N07E17	Q	
						N05E29	2	0	0			N05E29	Q	
						N07E54	0	0	0			N07E54	Q	
						S15E59	0	0	0			S15E59	Q	
						N09E64	0	0	0			N09E64	Q	
096	06	05	146	160	016	S16W94	0	0	0		06	S16W94	Q	SOLQUIET
						N18W63	0	0	0			N18W63	Q	MAGNIL
						S08W28	3	0	0			S08W28	Q	
						S17W11	0	0	0			S17W11	E	
						S10W03	0	0	0			S10W03	Q	
						N09E05	0	0	0			N09E05	Q	
						N05E16	2	0	0			N05E16	Q	
						N08E40	0	0	0			N08E40	Q	
						S14E45	0	0	0			S14E45	Q	
						N09E50	0	0	0			N09E50	Q	
097	07	06	153	165	014	N18W77	0	0	0		07	N18W77	Q	SOLQUIET
						S07W39	0	0	0			S07W39	Q	MAGQUIET
						S18W24	0	0	0			S18W24	Q	
						N09W08	1	0	0			N09W08	Q	
						N05E03	1	0	0			N05E03	Q	
						N08E28	0	0	0			N08E28	Q	
						S13E33	0	0	0			S13E33	Q	
						N09E36	0	0	0			N09E36	Q	
						N13E73	0	0	0			N13E73	Q	
						S04E74	0	0	0			S04E74	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

APRIL 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
098	08	07	180	163	007	N18W90	0	0	0		08	N18W90	Q	SOLQUIET
						S07W52	2	0	0			N07W52	Q	MAGQUIET
						S18W39	0	0	0			S18W39	Q	
						N09W22	0	0	0			N09W22	Q	
						N05W11	1	0	0			N05W11	Q	
						N08E15	0	0	0			N08E15	Q	
						S13E20	1	0	0			S13E20	Q	
						N09E23	0	0	0			N09E23	Q	
						N12E59	0	0	0			N12E59	Q	
						S03E60	0	0	0			S03E60	Q	
						S06E71	0	0	0			S06E71	Q	
						N05E72	0	0	0			N05E72	Q	
						S16W82	0	0	0			S16W82	Q	
099	09	08	159	165	009	S07W66	0	0	0		09	S07W66	Q	SOLQUIET
						S17W56	0	0	0			S17W56	Q	MAGQUIET
						N08W37	0	0	0			N08W37	Q	
						N06W25	1	0	0			N06W25	Q	
						S12E05	0	0	0			S12E05	Q	
						N08E06	0	0	0			N08E06	Q	
						S06E18	0	0	0			S06E18	Q	
						S04E47	0	0	0			S04E47	Q	
						N13E48	0	0	0			N13E48	Q	
						N04E57	0	0	0			N04E57	Q	
						S08E58	1	0	0			S08E58	Q	
						S27E65	2	0	0			S27E65	Q	
100	10	09	204	170	009	S18W68	0	0	0		10	S18W68	Q	SOLQUIET
						N08W50	0	0	0			N08W50	Q	MAGQUIET
						N06W38	1	0	0			N06W38	Q	
						S13W09	0	0	0			S13W09	Q	
						N08W08	0	0	0			N08W08	Q	
						S07E04	0	0	0			S07E04	Q	
						N12E33	2	0	0			N12E33	Q	
						N16E33	1	0	0			N16E33	Q	
						S04E33	0	0	0			S04E33	Q	
						S08E35	3	0	0			S08E35	Q	
						N04E46	0	0	0			N04E46	Q	
						S27E52	5	0	0			S27E52	Q	
						N17E69	0	0	0			N17E69	Q	
						S09E75	2	0	0			S09E75	Q	
101	11	10	209	176	032	S18W81	0	0	0		11	S18W81	Q	SOLQUIET
						N05W51	2	0	0			N05W51	Q	MAGALERT 11/XX
						N08W23	0	0	0			N08W23	Q	
						S13W20	0	0	0			S13W20	Q	
						N16E19	1	0	0			N16E19	Q	
						S04E19	1	0	0			S04E19	Q	
						N11E23	6	0	0			N11E23	Q	
						S08E23	0	0	0			S08E23	Q	
						N04E33	0	0	0			N04E33	Q	
						S26E39	6	0	0			S26E39	Q	
						N16E56	0	0	0			N16E56	Q	
						S10E61	0	0	0			S10E61	Q	
102	12	11	200	186	034	N06W63	2	0	0		12	N06W63	Q	SOLQUIET
						S12W61	0	0	0			S12W61	Q	MAGNIL
						N07W38	0	0	0			N07W38	Q	
						S12W36	0	0	0			S12W36	Q	
						N16E04	6	1	0			N16E04	Q	
						S04E06	0	0	0			S04E06	Q	
						N12E08	6	0	0			N12E08	Q	
						S09E13	0	0	0			S09E13	Q	
						N04E20	0	0	0			N04E20	Q	
						S27E27	3	0	0			S27E27	E	
						N17E45	0	0	0			N17E45	Q	
						S10E48	0	0	0			S10E48	Q	
103	13	12	235	178	014	S11W79	0	0	0		13	S11W79	Q	SOLQUIET
						N07W78	2	0	0			N07W78	Q	MAGQUIET
						N07W49	0	0	0			N07W49	Q	
						S13W48	0	0	0			S13W48	Q	
						N16W09	4	0	0			N16W09	E	
						S04W08	2	0	0			S04W08	Q	
						N12W05	0	0	0			N12W05	Q	
						S07W03	3	1	0			S07W03	E	
						S20W03	0	0	0			S20W03	Q	
						N03E06	0	0	0			N03E06	Q	
						S26E13	3	0	0			S26E13	Q	
						N16E31	0	0	0			N16E31	Q	
						S10E33	2	0	0			S10E33	Q	
						N14E54	0	0	0			N14E54	Q	
						S23E68	0	0	0			S23E68	Q	
104	14	13	225	170	010	N06W90	0	0	0		14	n06W90	Q	SOLQUIET
						S14W61	2	0	0			S14W61	Q	MAGQUIET
						S05W39	0	0	0			S05W39	Q	
						S04W21	0	0	0			S04W21	Q	
						N16W20	2	0	0			N16W20	E	
						N12W18	0	0	0			N12W18	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

APRIL 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
						S07W16	0	0	0			S07W16	Q	
						N03W07	4	0	0			N03W07	Q	
						S26E00	0	0	0			S26E00	Q	
						N23E15	0	0	0			N23E15	Q	
						N16E18	1	0	0			N16E18	Q	
						S10E20	0	0	0			S10E20	E	
						S22E56	0	0	0			S22E56	Q	
						N05E73	0	0	0			N05E73	Q	
105	15	14	198	157	009	S05W53	0	0	0	Presto Soflare	15	S05W53	Q	SOLQUIET
						N17W35	3	1	0	M1/2B S27W02		N17W35	E	MAGQUIET
						S03W35	5	0	0	14/0235Z Duration		S03W35	Q	
						S17W34	0	0	0	48 Minutes.		S17W34	Q	
						N12W31	0	0	0	Tenflare 190 Flux		N12W31	Q	
						S07W29	1	0	0	Units 14/0239Z		S07W29	Q	
						N03W21	1	0	0	Duration 31 Minutes		N03W21	Q	
						S27W15	3	1	0			S27W15	E	
						N23E02	0	0	0			N23E02	Q	
						N17E06	0	0	0			N17E06	Q	
						S09E07	0	0	0			S09E07	E	
						S23E42	0	0	0			S23E42	Q	
						N04E60	0	0	0			N04E60	Q	
106	16	15	220	151	009	S05W67	0	0	0		16	S05W67	Q	SOLQUIET
						S18W50	0	0	0			S18W50	Q	MAGQUIET
						N16W49	4	0	0			N16W49	E	
						S04W49	2	0	0			S04W49	Q	
						S15W49	0	0	0			S15W49	Q	
						N12W44	0	0	0			N12W44	Q	
						S07W43	3	0	0			S07W43	Q	
						N03W34	1	0	0			N03W34	Q	
						S27W29	0	0	0			S27W29	E	
						N23W11	0	0	0			N23W11	Q	
						N17W08	0	0	0			N17W08	Q	
						S09W07	1	0	0			S09W07	E	
						S17E21	1	0	0			S17E21	Q	
						S24E29	0	0	0			S24E29	Q	
						N04E47	1	0	0			N04E47	Q	
107	17	16	172	147	011	N16W63	2	0	0		17	N16W63	E	SOLQUIET
						S04W62	0	0	0			S04W62	Q	MAGALERT MINOR 17
						S08W61	0	0	0			S08W61	Q	
						N12W58	0	0	0			N12W58	Q	
						N03W47	0	0	0			N03W47	Q	
						S26W41	0	0	0			S26W41	Q	
						N21W24	0	0	0			N21W24	Q	
						N16W21	0	0	0			N16W21	Q	
						S09W20	0	0	0			S09W20	Q	
						S17E07	0	0	0			S17E07	E	
						S24E16	0	0	0			S24E16	Q	
						N04E34	0	0	0			N04E34	Q	
108	18	17	155	147	015	N15W78	0	0	0		18	N15W78	E	SOLQUIET
						S04W76	0	0	0			S04W76	Q	MAGNIL
						N12W71	0	0	0			N12W71	Q	
						N06W60	1	0	0			N06W60	Q	
						S27W55	0	0	0			S27W55	Q	
						N21W38	0	0	0			N21W38	Q	
						N17W34	0	0	0			N17W34	Q	
						S09W31	0	0	0			S09W31	Q	
						S17W06	2	0	0			S17W06	E	
						N04E20	0	0	0			N04E20	Q	
						S13E46	0	0	0			S13E46	Q	
						S13E74	0	0	0			S13E74	Q	
109	19	18	156	146	012	N16W88	1	0	0		19	N16W88	Q	SOLQUIET
						N12W85	0	0	0			N12W85	Q	MAGQUIET
						N02W74	0	0	0			N02W74	Q	
						S26W67	0	0	0			S26W67	Q	
						N21W53	0	0	0			N21W53	Q	
						N17W48	0	0	0			N17W48	Q	
						S08W42	3	0	0			S08W42	Q	
						S18W18	10	0	0			S18W18	E	
						N04E08	0	0	0			N04E08	Q	
						S12E61	0	0	0			S12E61	Q	
						S17E66	0	0	0			S17E66	Q	
110	20	19	132	144	013	S26W81	0	0	0	Presto Tenflare	20	S26W81	Q	SOLQUIET
						S08W56	1	0	0	260 Flux Units		S08W56	Q	MAGQUIET
						S18W32	4	1	0	19/1810Z Duration		S18W32	E	
						S22W18	0	0	0	3 MINUTES.		S22W18	Q	
						N05W06	0	0	0			N05W06	Q	
						S12E48	0	0	0			S12E48	Q	
						S16E52	0	0	0			S16E52	Q	
						N18E68	0	0	0			N18E68	Q	
						N06E69	0	0	0			N06E69	Q	
						N12E73	0	0	0			N12E73	Q	
111	21	20	117	143	018	S08W70	0	0	0		21	S08W70	Q	SOLQUIET
						S18W46	0	0	0			S18W46	Q	MAGQUIET

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT WWA MESSAGES — APRIL 1982

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						N05W19	0	0	0			N05W19	Q	
						N23E23	0	0	0			N23E23	Q	
						S13E35	0	0	0			S13E35	Q	
						N18E54	1	0	0			N18E54	E	
						N05E58	0	0	0			N05E58	Q	
						N13E59	1	0	0			N13E59	Q	
112	22	21	123	144	021	S07W83	0	0	0		22	S07W83	Q	SOLQUIET
						S19W61	0	0	0			S19W61	E	MAGQUIET
						N05W33	0	0	0			N05W33	Q	
						N23E09	0	0	0			N23E09	Q	
						S13E22	0	0	0			S13E22	Q	
						N19E38	0	0	0			N19E38	Q	
						N05E43	0	0	0			N05E43	Q	
						N12E45	1	0	0			N12E45	Q	
113	23	22	145	153	020	S08W97	0	0	0	Presto Soflare	23	S08W97	Q	SOLQUIET
						S19W75	0	0	0	M1/2B N05E38		S19W75	Q	MAGALERT 25/27
						N05W47	0	0	0	Duration 60 Minutes		N05W47	Q	
						N08E07	1	0	0	Tenflare 180 Flux		N08E07	Q	
						S13E09	0	0	0	Units 22/1246Z		S13E09	Q	
						N18E23	3	0	0	Duration 44 Minutes		N18E23	E	
						N05E29	0	0	0	Magstorm Expected		N05E29	Q	
						N11E39	3	1	0	26 April 1982.		N11E39	E	
						N22E50	0	0	0			N22E50	Q	
114	24	23	216	173	011	N05W59	0	0	0		24	N05W59	Q	SOLALERT 25/XX
						S03W35	0	0	0			S03W35	Q	MAGALERT 25/26
						N02W21	0	0	0			N02W21	Q	
						N05W07	0	0	0			N05W07	Q	
						S12W04	0	0	0			S12W04	Q	
						N18E12	4	0	0			N18E12	E	
						N05E16	0	0	0			N05E16	E	
						N10E17	0	0	0			N10E17	Q	
						N13E21	0	0	0			N13E21	E	
						N22E36	6	0	0			N22E36	E	
115	25	24	233	179	012	N05W73	1	0	0		25	N05W73	Q	SOLALERT 25/27
						S03W48	1	0	0			S03W48	Q	MAGALERT 25/26
						N02W35	0	0	0			N02W35	Q	
						N07W22	0	0	0			N07W22	Q	
						S12W18	0	0	0			S12W18	Q	
						N18W01	5	0	0			N18W01	E	
						N05E02	0	0	0			N05E02	E	
						N10E03	7	0	0			N10E03	E	
						N13E08	0	0	0			N13E08	Q	
						N24E14	0	0	0			N24E14	Q	
						N22E22	2	0	0			N22E22	E	
116	26	25	216	183	041	N05W88	0	0	0	Presto Tenflare	26	N05W88	Q	SOLALERT
						S04W63	2	0	0	1200 Flux Units		S04W63	Q	MAGALERT 26
						N02W52	1	0	0	25/0333Z Duration		N02W52	Q	
						S12W31	1	0	0	4 Minutes.		S12W31	Q	
						N18W15	4	0	0			N18W15	E	
						N04W12	3	0	0			N04W12	E	
						N10W11	3	0	0			N10W11	E	
						N12W05	0	0	0			N12W05	Q	
						N24E01	0	0	0			N24E01	Q	
						N21E10	1	0	0			N21E10	E	
117	27	26	220	176	005	S04W76	1	0	0		27	S04W76	E	SOLNIL
						N02W65	0	0	0			N02W65	Q	MAGNIL
						S12W44	0	0	0			S12W44	Q	
						N09W39	0	0	0			N09W39	Q	
						N18W27	3	0	0			N18W27	E	
						N05W25	0	0	0			N05W25	E	
						N10W25	1	0	0			N10W25	E	
						N13W20	0	0	0			N13W20	Q	
						N25W14	0	0	0			N25W14	Q	
						N22W05	1	0	0			N22W05	E	
						N16E35	0	0	0			N16E35	Q	
						N17E66	0	0	0			N17E66	Q	
118	28	27	193	165	019	S04W89	0	0	0		28	S04W89	Q	SOLQUIET
						N02W78	0	0	0			N02W78	Q	MAGQUIET
						S12W59	0	0	0			S12W59	Q	
						N08W54	0	0	0			N08W54	Q	
						N18W42	1	0	0			N18W42	Q	
						N05W39	0	0	0			N05W39	Q	
						N10W39	2	0	0			N10W39	E	
						N13W34	0	0	0			N13W34	Q	
						N22W18	2	0	0			N22W18	Q	
						N17E51	0	0	0			N17E51	Q	
						S18E59	3	0	0			S18E59	Q	
119	29	28	134	163	020	S11W72	1	0	0		29	S11W72	Q	SOLQUIET
						N20W54	2	0	0			N20W54	E	MAGQUIET
						N05W53	1	0	0			N05W53	Q	
						N11W51	3	0	0			N11W51E		
						N14W46	0	0	0			N14W46	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT WWA MESSAGES — APRIL 1982

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						N23W30	0	0	0			N23W30	Q	
						S18E46	9	0	0			S18E46	Q	
120	30	29	141	153	021	S13W85	0	0	0		30	S13W85	Q	SOLQUIET
						N18W74	3	1	0			N18W74	Q	MAGQUIET
						N15W71	2	0	0			N15W71	E	
						N08W66	0	0	0			N08W66	Q	
						N15W60	0	0	0			N15W60	Q	
						S12W56	1	0	0			S12W56	Q	
						N23W43	3	0	0			N23W43	Q	
						N16W01	0	0	0			N16W01	Q	
						S18E33	3	0	0			S18E33	E	
121	01	30	136	149	029	N18W87	2	0	0		01	N18W87	Q	SOLQUIET
						N12W80	0	0	0			N12W80	E	MAGQUIET
						N06W79	0	0	0			N06W79	Q	
						N13W74	0	0	0			N13W74	Q	
						S12W68	1	0	0			S12W68	Q	
						N23W56	2	0	0			N23W56	Q	
						S14W22	0	0	0			S14W22	Q	
						N16W16	0	0	0			N16W16	Q	
						S18E20	7	0	0			S18E20	Q	

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

01 APRIL 1982 MEUDON 01/1415Z SSC 01/1305Z AT CHAMBON LA FORET
02 APRIL 1982 BOULDER 02/1405Z SOFLARE M6/2B N09W62 02/0900Z DURATION 30 MINUTES
14 APRIL 1982 BOULDER 14/0353Z SOFLARE M1/2B S27W02 14/0235Z DURATION 48 MINUTES
14 APRIL 1982 BOULDER 14/0353Z TENFLARE 190 FLUX UNITS 14/0239Z DURATION 31 MINUTES
14 APRIL 1982 LEARMONTH 14/0530Z SOFLARE 2B S27W03 14/0236Z PARALLEL RIBBON 20 PER CENT UMBRAL COVERAGE TYPE IV 30-80 MHZ
19 APRIL 1982 BOULDER 19/1828Z TENFLARE 260 FLUX UNITS 19/1810Z DURATION 3 MINUTES
22 APRIL 1982 MEUDON 22/1435Z MAJORFLARE IN PROGRESS 22/1415Z N09E40 TO E60 WITH METRIC BURST
22 APRIL 1982 BOULDER 22/1515Z SOFLARE M1/2B N05E38 22/1238Z DURATION 60 MINUTES
22 APRIL 1982 BOULDER 22/1515Z TENFLARE 180 FLUX UNITS 22/1246Z DURATION 44 MINUTES
22 APRIL 1982 BOULDER 22/1600Z STRONG MAGSTORM EXPECTED 26 APRIL 1982
25 APRIL 1982 BOULDER 25/0420Z TENFLARE 1200 FLUX UNITS 25/0333Z DURATION 4 MINUTES

RELATIVE SUNSPOT NUMBERS

INTERNATIONAL, R_I

DAY	1981 FINAL MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 PROVISIONAL JAN	FEB	MAR	APR
1	112	62	149	121	205	216	165	193	92	258	167	145
2	133	59	140	105	183	206	222	197	94	241	174	115
3	156	44	140	112	160	219	218	212	112	232	175	151
4	152	58	112	109	170	189	221	212	109	221	177	137
5	162	55	112	113	195	195	233	219	99	219	163	112
6	192	57	85	102	220	169	199	234	86	230	165	117
7	171	58	66	107	205	171	192	244	94	226	146	130
8	177	46	62	115	208	185	184	249	97	232	140	131
9	168	58	65	121	190	177	134	258	98	211	116	132
10	148	59	99	138	196	144	147	253	85	199	122	138
11	169	72	130	136	164	131	146	263	46	158	119	152
12	183	79	139	140	138	123	160	240	52	156	135	142
13	149	86	153	134	132	171	158	185	51	162	155	148
14	140	99	145	140	148	187	178	159	58	142	153	136
15	141	111	150	153	129	212	139	113	81	134	140	127
16	127	109	161	134	138	223	126	66	76	111	156	122
17	124	119	171	125	129	219	103	80	111	120	180	108
18	119	104	161	148	145	210	108	79	139	103	168	91
19	100	90	151	175	156	189	90	74	143	107	167	87
20	77	71	145	188	137	183	82	57	134	119	149	93
21	99	87	122	222	175	145	82	65	134	120	153	91
22	106	106	129	220	172	145	73	75	121	100	146	109
23	93	119	162	200	137	118	65	86	93	97	144	138
24	96	109	196	178	135	109	59	68	70	120	122	145
25	93	127	213	189	142	101	60	62	82	115	152	149
26	105	127	206	215	153	92	60	100	119	136	147	150
27	99	133	218	222	181	75	77	104	125	140	182	126
28	93	123	208	214	195	92	130	136	168	145	189	90
29	92	138	159	194	191	131	148	132	216		169	85
30	83	161	156	233	190	152	165	112	211		162	75
31	92		152	216		156		126	237		132	
MEAN	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	110.7	162.6	153.7	122.5

1981 YEARLY MEAN = 140.4

* ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

DAY	1981 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB	MAR	APR
1	188.0	149.6	175.4	183.9	248.3	210.6*	222.5*	230.7*	179.9	284.8*	231.3	172.2*
2	193.4	144.3	168.9	182.6	242.8	204.8*	241.3*	230.3*	177.2	279.7*	228.3	172.0*
3	206.5*	134.9	163.3*	192.4	229.0	196.5	255.3*	238.6	176.1	272.9*	230.1	169.9
4	221.2	133.8	165.9	190.6*	233.4	191.1	263.1	241.7	170.4	252.8*	238.3*	158.2
5	237.5	136.0	152.5	178.8	248.7	193.6*	254.1	260.0	165.5	245.2	245.4*	159.9*
6	231.2	140.6	148.7	179.6	263.2*	200.3	244.6	262.1	166.8	245.2	230.0*	165.2
7	234.2	146.7	149.8	173.0	262.5*	204.1*	241.4	275.6*	166.9*	239.9	228.3	164.0*
8	222.4*	146.7*	152.4	178.4	266.3*	200.7*	234.7*	287.8	156.9	245.1*	207.1*	162.1*
9	218.6	152.8	150.0*	180.5	256.5	205.4*	232.6	292.4*	164.4	231.7	192.2	167.3*
10	217.7*	157.1	156.5*	182.0	247.6	213.4	231.0*	278.7	145.7	213.7	178.9*	177.1*
11	228.1*	154.8	167.4	206.4	240.8	220.0	217.0	266.7*	136.3	211.1*	178.2	178.7*
12	223.4	152.0	167.7*	209.0*	234.2	236.8*	223.5	254.2*	132.4	204.0*	181.2	177.5*
13	221.3	152.6	174.2*	208.7	230.2	256.2	215.9	218.9	127.5	194.9*	185.5	170.9
14	232.5	159.1	184.2	208.2	228.7*	275.6	207.4	193.0	130.5	185.3	201.3	157.9
15	223.9	164.7	194.5*	225.1	230.4	287.1	191.2	172.6	136.3	180.3	207.6*	152.2
16	218.9	169.1	205.3*	221.8*	227.5	302.4	181.2	157.4	146.7	170.5	227.7	148.2
17	207.6	171.2	200.8*	228.7	218.2*	302.9	172.7	144.2	152.6	162.5	230.4	145.9*
18	194.4	170.1	204.7*	244.1	216.5*	296.5*	160.8*	136.3*	167.6	165.7	226.8	147.0
19	186.6*	165.9	220.3	254.6*	210.5*	278.6	157.0	129.7	169.4	170.9*	219.7*	145.1
20	180.0	159.8	234.7*	269.8	200.1	257.8*	152.0	133.9	167.0	171.3	217.0	144.2
21	180.4	153.6	228.1*	267.1*	191.2	238.2	153.9	142.2	163.3	165.2	212.4	145.2
22	169.3*	166.1*	235.9	262.2*	183.0	218.6	152.7	145.9	152.9	163.7	213.7	156.9*
23	159.6	171.2*	254.7*	254.8	183.8	208.2	151.9	153.0	148.0	173.1	202.4	175.2
24	169.8	174.6	261.6*	258.9	182.2	201.1	150.4	156.1*	149.1	185.9*	189.0	181.0
25	177.2	183.6	259.7	254.8	182.0	186.0	159.1	162.1	169.3*	184.1	189.9	182.6*
26	173.8	193.9	273.1*	272.9*	188.8	172.0	178.3*	166.2	182.7*	204.0	192.8*	178.3
27	177.0	193.4	255.8*	281.6*	202.8	171.2	190.3	176.8	197.2	222.1	195.4*	167.3
28	181.3	191.6	223.6	275.3	200.9	182.4	206.4*	183.0	234.7	224.0	200.6	161.0*
29	170.6	187.5*	213.3	259.1	204.5	187.5	226.5*	183.6	267.0	.	198.0	155.6
30	164.6*	179.0	204.2*	265.1	203.8	201.5	231.6	185.7	284.5	.	194.5*	149.8*
31	156.1	.	197.6	256.0*	.	207.1	.	182.8	289.1	.	184.1	.
MEAN	198.9	161.9	198.2	226.0	221.9	222.8	203.3	201.4	173.4	208.9	208.3	162.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

APRIL 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.							
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	91	3	145	130	172.4*	631	312	205	172.2*	179	158	85	45	
2	92	4	115	116	172.2*	607			172.0*			93	49	
3	93	5	151	145	169.9	602	292	190	169.9	161	152	91	47	15
4	94	6	137	137	158.0	591	287	180	158.2	156	150	84	46	19
5	95	7	112	106	159.7*	641			159.9*			97	59	14
6	96	8	117	119	164.9				165.2					
7	97	9	130	128	163.7*	618	309	184	164.0*	168	154	108	50	14
8	98	10	131	125	161.6*	614			162.1*			91	45	13
9	99	11	132	131	166.8*	602	275	181	167.3*	171	159	90	47	14
10	100	12	138	142	176.4*	610	288	195	177.1*	180	168	87	44	14
11	101	13	152	152	177.8*	612	300	204	178.7*	183	161	92	45	14
12	102	14	142	143	176.6*	524	302	212	177.5*	188	165	92	51	17
13	103	15	148	144	169.9	589	293	195	170.9	173	159	91	49	16
14	104	16	136	134	157.0	583	275	182	157.9	158	154	114	47	16
15	105	17	127	124	151.1	600	274	176	152.2	154	142		38	15
16	106	18	122	115	147.2	593	264	172	148.2	148	142	82	41	12
17	107	19	108	98	144.7*	577	271	171	145.9*	118	134	89	46	20
18	108	20	91	81	145.7	584	274	175	147.0		127	83	45	19
19	109	21	87	85	143.8	575	267	166	145.1	143	132			
20	110	22	93	91	142.8	584	267	165	144.2	143	129	79	43	16
21	111	23	91	95	143.8	555	275	167	145.2	143	131	84	43	14
22	112	24	109	106	155.2*	599	280	193	156.9*	163	142	85	49	32
23	113	25	138	147	173.3	594	288	208	175.2	172	141	93	43	19
24	114	26	145	148	178.9	580	278	202	181.0		138	90	43	14
25	115	27	149	147	180.4*	584	274	196	182.6*	188	148	87	42	11
26	116	1	150	136	176.0	567	277	191	178.3	172	148	88	42	13
27	117	2	126	124	165.0	573	278	185	167.3	163	143	87	40	12
28	118	3	90	102	158.8*	563	294	180	161.0*	162	141	82	43	13
29	119	4	85	97	153.3	589	275	179	155.6	151	136	87	43	15
30	120	5	75	85	147.6*	576	275	177	149.8*	144	133	87	45	14
MEAN			122.5	121.1	161.8	590	282	185	162.9	162	146	90	45	16

*Adjusted for burst.

NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

Date	SUNSPOT NUMBERS Rz or R_I Monthly Mean	Rz or R_I Smoothed	Ra Monthly Mean	Ra Smoothed	Rs Monthly Mean	Rs Smoothed	2800 MHz FLUX adjusted to 1 AU Sa Monthly Mean	Sa Smoothed
May 79	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140*	154.3	146	152.1	157	198.2	203
Aug	158.7	141*	170.4	147	182.1	158	226.0	203
Sep	167.3	143*	174.5	148	177.7	158	221.9	204
Oct	162.4	142*	157.0	147	178.6	156	222.8	202
Nov	137.5	139(± 3)*	138.8	143	157.6	152	203.3	---
Dec	150.1	135(± 6)*	145.0	139	155.5	147	201.4	---
Jan 82	110.7†	130(± 9)*	110.4	134	124.2	142	173.4	---
Feb	162.6†	126(±11)*	161.0	129	163.6	137	208.9	---
Mar	153.7†	123(±10)*	155.5	126	163.0	134	208.3	---
Apr	122.5†	120(±10)*	---	123	113.9	131	162.9	---
May	---	117(± 9)*	---	120	---	127	---	---
Jun	---	113(±11)*	---	116	---	123	---	---
Jul	---	108(±11)*	---	111	---	118	---	---
Aug	---	103(±10)*	---	106	---	112	---	---
Sep	---	98(±10)*	---	101	---	106	---	---
Oct	---	92(± 9)*	---	94	---	98	---	---

*An asterisk denotes either a value of the observed 12-month running mean or a predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

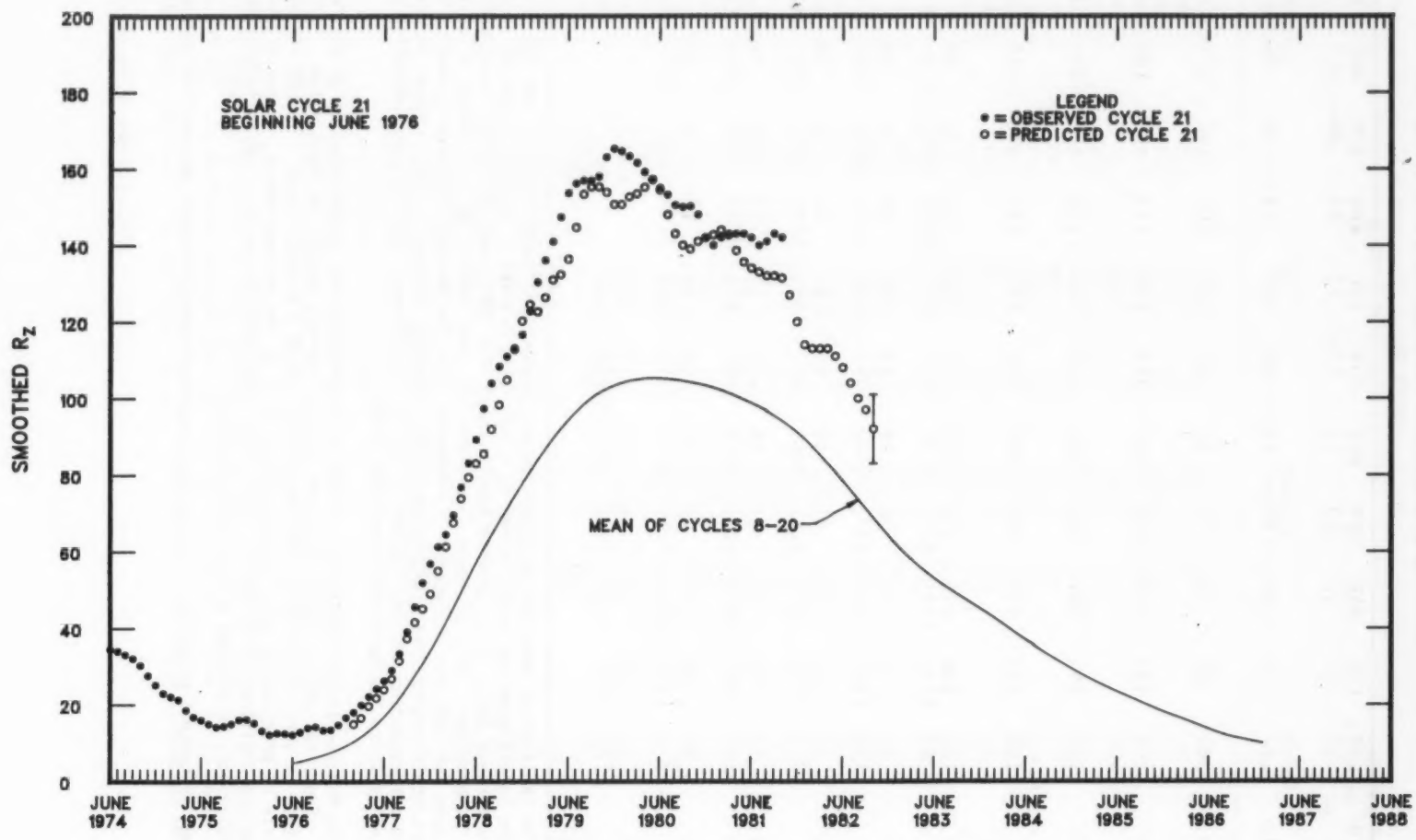
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	[139	135
											(3)	(6)
1982	130	126	123	120	117	113	108	103	98	92	88	84
	(9)	(11)	(10)	(10)	(9)	(11)	(11)	(10)	(10)	(9)	(9)	(10)
1983	80	77	76	74	71	68	67	66	64	64	64	63
	(10)	(10)	(11)	(12)	(14)	(16)	(18)	(20)	(22)	(23)	(23)	(24)
1984	62	59	55	51	49	49	48	46	44	42	40	39
	(25)	(25)	(25)	(26)	(28)	(29)	(29)	(29)	(29)	(28)	(27)	(26)
1985	37	37	36	36	35	33	32	31	30	29	28	28
	(26)	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(21)	(21)	(22)	(22)
1986	28	26	25	24	22	20	18	17	16	16	16	15
	(23)	(23)	(22)	(22)	(21)	(20)	(20)	(19)	(17)	(16)	(15)	(13)
1987	15	15	15	15	16	17	19					
	(12)	(12)	(12)	(12)	(14)	(15)	(15)					
1988												

The table gives observed smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980, final International numbers for 1981, and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1982 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see Explanation of Data Reports, February 1982). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

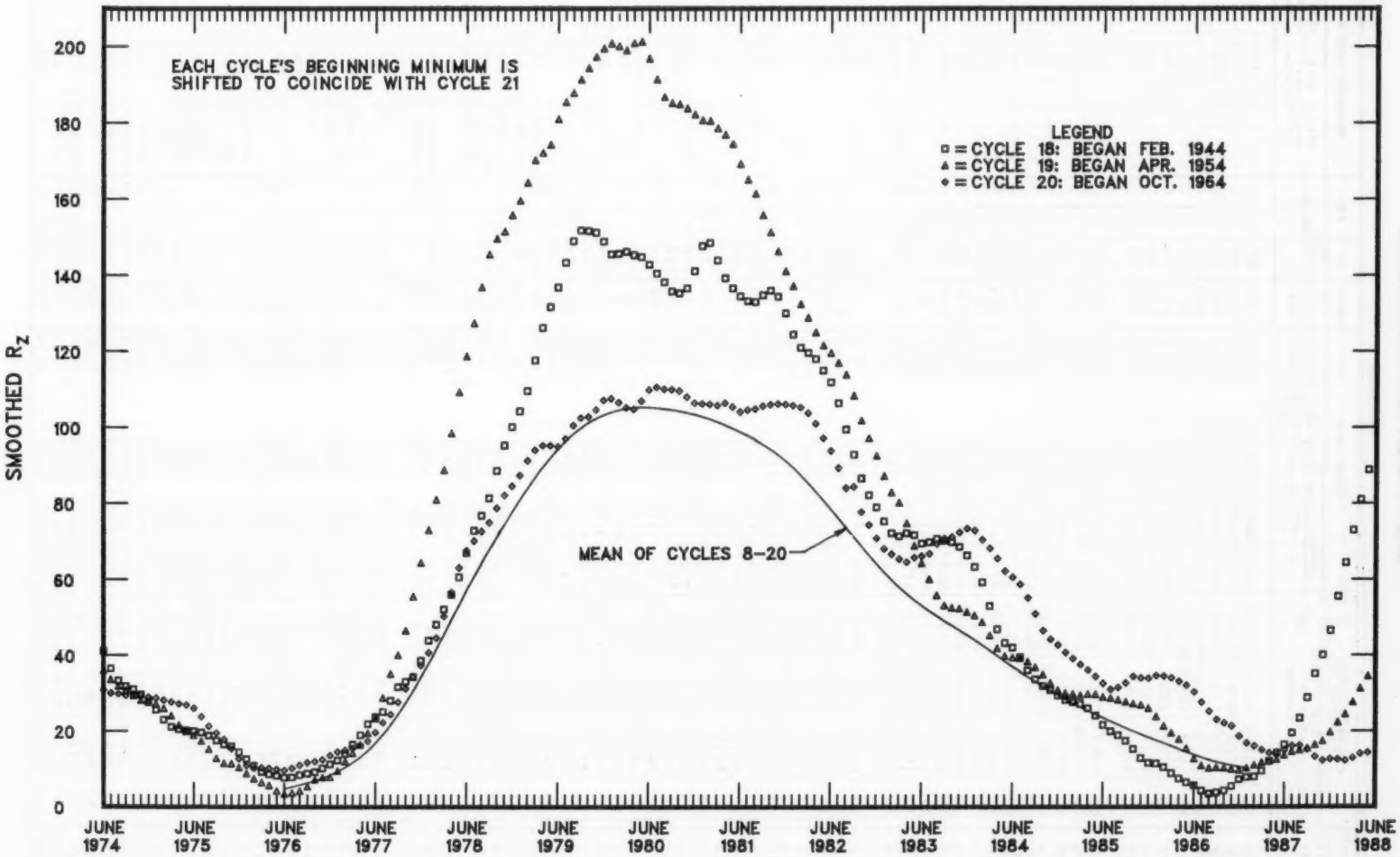
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15
Apr 82

Hα SOLAR FLARES

APRIL 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
YUNN	01	0219E	0223	0223D	N08	W45	.733		28.7	4D	SN		P		48	.7	E
LEAR	01	0220	0223	0234	N08	W45	.733		28.7	14	SB	3	C		57		FE
LEAR	01	0550	0559	0640	N08	W49	.777		28.6	50	SB	3	C		195		F
RAMY	01	1435	1526	1527	S19	E49	.757		5.3	52	SF	3	C		21		
RAMY	01	1609	1622	1705	N08	W51	.798		28.8	56	SB	3	C		145		UF
RAMY	01	1758	1806	1817	S18	E47	.734		5.3	19	SN	3	C		43		
RAMY	01	1927	1932	2009	N07	W56	.843		28.6	42	1B	3	C		274		UF
LEAR	01	2350	2350	0005	N13	W49	.793		29.3	15	SN	3	C		33		F
LEAR	02	0053	0055	0108	N07	W59	.869		28.6	15	SN	3	C		17		F
PEKG	02	0534E	0535	0542	S15	W42	.670		30.1	8	SF		P	0535	84	1.2	E
LEAR	02	0535	0539	0558	S17	W43	.686		30.0	23	SF	3	C		72		F
PEKG	02	0604	0606U	0606D	S18	E40	.651		5.3	2D	SF		P	0606	139	1.9	E
PEKG	02	0736	0741U	0800D	N19	W62	.915		28.7	24D	SF		P	0741	25		D
PEKG	02	0834	0837U	0840D	N11	W59	.877		28.9	6D	SF		P	0837	80	1.7	E
LEAR	02	0900	0908	0952D	N09	W62	.897		28.7	52D	2B	3	C		434		FE
BUCA	02	0900	0909	0940	N07	W62	.893		28.7	40	2N		C	0909	430	8.4	E
MANI	02	0903	0908	0913D	N09	W59	.873		29.0	10D	2B	1	V		300	5.6	FE
MONT	02	0903	0910	0924D	N08	W67	.930		28.4	21D	1B		C	0910	200		
HOLL	02	1934	1935	1939	N09	W72	.958		28.4	5	SF	3	C				
HOLL	02	1951	1953	1956	N15	W58	.878		29.5	5	SF	3	C		15		
PEKG	02	2345E	2348	2359	S10	W75	.962		28.4	14	SF		P	2348	50		E
PEKG	03	0020E	0021	0029	N09	E48	.769		6.6	9	SN		P	0021	71	1.2	E
LEAR	03	0135	0136	0218	N12	W68	.940		29.0	43	SN	2	C		62		F
LEAR	03	0223	0223	0237	S23	W38	.644		31.2	14	SF	3	C		22		
LEAR	03	0242	0248	0305	N07	W75	.970		28.5	23	SN	3	C				F
PEKG	03	0246E	0246U	0256	N09	W73	.963		28.6	10	SN		P	0246	59		E
LEAR	03	0307	0307	0313	N15	W24	.530		1.3	6	SF	3	C		39		F
PEKG	03	0335E	0337	0337D	S08	E11	.191		4.0	2D	SN		P	0337	71	.7	E
LEAR	03	0612	0620	0634	N08	W75	.971		28.6	22	SN	3	C				
LEAR	03	0615	0615	0620	N17	W27	.581		1.2	5	SN	3	C		29		
LEAR	03	0622	0627	0657	S13	W77	.970		28.5	35	SF	3	C				
PEKG	03	0626E	0626	0629	S08	E10	.174		4.0	3	SN		P	0626	147	1.5	E
LEAR	03	0636	0638	0713	S09	E10	.178		4.0	37	SB	3	C		59		FE
MANI	03	0637E	0638	0655D	S08	E11	.191		4.1	18D	SB	1	V		50	.5	F
PEKG	03	0639E	0640	0713	S08	E10	.174		4.0	34	1N		C	0640	202	2.1	U
PEKG	03	0702	0705	0711	N18	W27	.590		1.3	9	SF		C	0705	59	.7	E
PEKG	03	0736	0737	0740	N11	W74	.969		28.8	4	SN		C	0737	21		D
LEAR	03	0737	0737	0748	N08	W74	.967		28.8	11	SB	3	C				E
LEAR	03	0741	0747	0827	S12	W79	.978		28.4	46	1N	3	C		79		K
LEAR	03	0741	0758	0827	S12	W79	.978		28.4	46	SB	3	C				FEK
MONT	03	0744	0758	0823	S13	W81	.984		28.2	39	SN		C	0758	70		
PEKG	03	0745E	0754	0818	S10	W79	.979		28.4	33	SF		P	0754	34		E
PEKG	03	0745E	0749	0818	S11	W80	.982		28.3	33	SF		P	0749	25		EK
PEKG	03	0749E	0806	0816	S09	E09	.161		4.0	27	SN		C	0806	92	.9	E
PEKG	03	0749E	0749	0816	S09	E09	.161		4.0	27	SN		P	0749	84	.9	EK
LEAR	03	0822	0827	0837	N09	W73	.963		28.9	15	SN	3	C				
PEKG	03	0824E	0829	0829D	S09	E09	.161		4.0	5D	SN		P	0829	126	1.3	ET
PEKG	03	0827	0829	0840	N10	W73	.964		28.9	13	SN		C	0829	25		D
LEAR	04	0034	0038	0055	S21	E19	.399		5.4	21	SN	3	C		37		H
PEKG	04	0040E	0040	0040D	S20	E17	.365		5.3		SN		P	0040	97	1.1	E
PEKG	04	0140	0146U	0214	S12	W79	.978		29.1	34	SF		C	0146	25		DK
PEKG	04	0140	0206	0214	S12	W79	.978		29.1	34	SN		C	0206	42		D
LEAR	04	0233	0247	0302	S20	E16	.353		5.3	29	SN	3	C		60		F
LEAR	04	0356	0421	0542	S22	W45	.721		31.8	106	1B	3	C		270		K
LEAR	04	0356	0404	0542	S22	W45	.721		31.8	106	1B	3	C		212		FEK
MANI	04	0359E	0404	0410	S21	W46	.729		31.7	11	1B	1	V		170	2.6	FE
PEKG	04	0401	0403	0412	S19	W46	.725		31.7	11	1B		C	0403	168	2.5	E
PEKG	04	0402	0403	0404	S10	W00	.063		4.2	2	SN		P	0403	38	.4	D
PEKG	04	0408	0416U	0429D	S21	W47	.740		31.6	21D	1N		C	0416	147	2.3	FK
PEKG	04	0408	0420	0429D	S20	W48	.749		31.6	21D	1N		C	0420	181	2.8	F
YUNN	04	0420E	0421U	0449	S22	W49	.763		31.5	29	SN		P	0421	113	1.8	E
PEKG	04	0440	0451	0456D	S17	W40	.649		1.2	16D	SN		P	0451	71	.9	D
PEKG	04	0450	0451	0453	S11	W80	.982		29.2	3	SF		C	0451	13		D
PEKG	04	0618E	0625	0639	N15	W87	1.000		28.7	21	SN		P	0625	34		D
PEKG	04	0643	0655	0712D	N13	W88	1.000		28.7	29D	SB		C	0655	84		D
YUNN	04	0649	0657	0657D	N11	W89	1.000		28.6	8D	1N		C		80		A
PEKG	04	0729	0730	0732	S10	W85	.995		28.9	3	SF		P	0730	8		D
PEKG	04	0745	0746	0747	N07	E27	.501		6.3	2	SN		P	0746	29	.4	D
LEAR	04	0800	0806U	0916	S25	W50	.780		31.6	76	1B	2	C		350		FE

Hα SOLAR FLARES

APRIL 1982

OBSERVATORY	OBSERVED UT				LOCATION				CMP DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				CONF.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BUCA	04	0808E	0813	0915	S25	W49	.770		31.7	67	2N		C	0813	482	7.4	G
PEKG	04	0832E	0832	0905D	S21	W52	.792		31.5	33D	1N		P	0832	147	2.5	FK
PEKG	04	0832E	0842	0905D	S21	W51	.782		31.5	33D	1B		P	0842	252	4.2	F
YUNN	04	0839E	0840U	0902	S23	W52	.795		31.5	23	1N		P	0840	161	2.7	F
WEND	04	1340	1348	1424	N01	E34	.570		7.1	44	SF		C	1348	38	.5	
HOLL	04	1344	1357	1425	N00	E33	.553		7.0	41	SF	2	C		44		
WEND	04	1353	1407	1426	N08	W08	.283		4.0	33	SN		C	1407	175	1.8	
HOLL	04	1354	1400	1426	S09	W07	.129		4.1	32	1N	2	C		212		U
HOLL	04	1926	1929	1934	N07	E23	.447		6.5	8	SF	3	C		28		F
HOLL	04	2249	2250	2311	S09	W14	.244		3.9	22	SF	3	C		43		
HOLL	04	2328	2329	2346	N00	E28	.480		7.1	18	SF	3	C		32		F
LEAR	05	0117	0118	0127	S09	W15	.261		3.9	10	SN	3	C		81		F
PEKG	05	0118	0120	0126	S08	W15	.258		3.9	8	SN		C	0120	101	1.1	E
PEKG	05	0155E	0158	0218	S09	W14	.244		4.0	23	SN		C	0158	105	1.1	E
LEAR	05	0155	0202	0214	S10	W15	.264		4.0	19	SN	3	C		60		FH
PEKG	05	0209	0211	0214	N13	W41	.708		2.0	5	SN		C	0211	55	.8	E
WEND	05	0740	0755	0824	N02	E25	.443		7.2	44	SF		C	0755	50	.6	
LEAR	05	0748	0749	0816	N01	E23	.408		7.0	28	SN	3	C		42		
PEKG	05	0752E	0752	0816	N02	E23	.413		7.1	24	SN		P	0752	118	1.3	E
YUNN	05	0758E	0800U	0814	N02	E23	.413		7.1	16	SN		P	0800	48	.5	D
YUNN	05	0821E	0821U	0830	N02	E23	.413		7.1	9	SN		P	0821	32	.4	D
WEND	05	0946	0949	0959	S09	W18	.310		4.1	13	SF		C	0949	38	.4	
HOLL	05	2132	2134	2145	S08	W25	.420		4.0	13	SF	3	C		70		F
PALE	05	2132	2135	2146	S08	W22	.373		4.2	14	SF	2	C		70		F
BIGB	05	2132	2136	2146	S08	W22	.373		4.2	14	SF	3	C	2136	90	1.0	
HOLL	05	2154	2157	2238D	N02	E16	.309		7.1	44D	SF	3	C		27		
LEAR	06	0217	0230	0319	N06	E20	.398		7.6	62	SN	3	C		120		F
YUNN	06	0224	0229	0237D	N07	E18	.380		7.4	13D	SN		P		129	1.4	D
PEKG	06	0228E	0236	0255	N06	E19	.384		7.5	27	1N		C	0236	421	4.7	F
PEKG	06	0243	0245	0252	S07	W27	.451		4.1	9	SN		C	0245	63	.7	E
LEAR	06	0306	0312	0321	N07	E03	.235		6.4	15	SN	3	C		29		F
PEKG	06	0306	0310	0325	N08	E03	.252		6.4	19	SN		C	0310	97	1.0	E
YUNN	06	0313E	0313U	0325	N08	E03	.252		6.4	12	SN		P	0313	48	.5	E
YUNN	06	0545	0547	0602D	N11	E18	.421		7.6	17D	SN		P		161	1.8	EG
MONT	06	1038	1042	1047	N12	E45	.747		9.3	9	SN		C	1042	80		
PEKG	07	0000E	0015U	0040D	S08	W39	.626		4.1	40D	SN		C	0040	55	.7	E
LEAR	07	0002E	0002	0025	S10	W39	.626		4.1	23	SN	3	C		67		
YUNN	07	0125E	0125U	0125D	N14	W88	1.000		31.5				P	0125			AG
LEAR	07	0216	0222	0244	S09	W40	.639		4.1	28	SF	3	C		76		
PEKG	07	0221	0223	0225	S07	W40	.639		4.1	4	SN		C	0223	46	.6	E
PEKG	07	0434E	0434	0436D	N03	W02	.164		7.0	2D	SF		P	0434	34	.4	D
PEKG	07	0645E	0647	0652	S12	E25	.428		9.2	7	SN		C	0647	160	1.8	E
LEAR	07	0645	0649	0655	S13	E25	.431		9.2	10	SB	3	C		129		FH
YUNN	07	0645	0650	0650D	S12	E26	.443		9.2	5D	SB		C		96	1.1	D
BUCA	07	0645		0655	S12	E25	.428		9.2	10	SF		P	0650	54	.6	D
MANI	07	0647E	0648	0655D	S13	E24	.416		9.1	8D	SB	1	V		95	1.1	F
YUNN	07	0858	0903U	0903D	S26	E87	.996		13.9	5D	1N		P	0903	48		A
RAMY	07	1653	1657	1705D	N03	W09	.223		7.0	12D	SB	3	C		181		
BIGB	07	1653	1659	1754	N03	W09	.223		7.0	61	SB	3	C	1659	90	.9	
YUNN	08	0031	0034	0050	S26	E87	.996		14.5	19	SN		C		32		E
YUNN	08	0054	0101	0103D	S27	E83	.988		14.3	9D	SN		P		32		D
LEAR	08	0149	0150	0201	S08	E70	.936		13.3	12	SF	3	C		42		
ISTA	08	0642		0705	S29	E75	.961		13.9	23	SN						B
YUNN	08	0748E	0748U	0749D	S26	E76	.965		14.0	1D	SN		P	0748	32		E
HOLL	08	1354	1356	1400	S30	E70	.938		13.8	6	SF	3	C		29		
HOLL	08	1753	1759	1813	N07	W20	.405		7.2	20	SF	3	C		80		F
HOLL	08	2056	2056	2111	S30	E69	.932		14.0	15	SF	3	C		19		F
LEAR	09	0144	0150	0221	N05	W26	.473		7.1	37	SB	3	C		156		FE
PEKG	09	0145	0154	0212	N07	W26	.485		7.1	27	SB		C	0154	151	1.8	E
PALE	09	0158E	0158U	0219	N05	W25	.459		7.2	21	SF	2	C		78		F
LEAR	09	0305	0305	0318	S13	E56	.825		13.3	13	SF	3	C		45		F
LEAR	09	0414	0428	0456	S29	E67	.920		14.2	42	SN	3	C		68		F
YUNN	09	0802	0802	0805	S27	E62	.886		14.0	3	SF		C		48	1.1	E
YUNN	09	0804	0805	0807D	N13	E48	.781		12.9	3D	SN		P		32	.5	D
YUNN	09	0807	0813	0819D	S08	E44	.691		12.6	12D	SN		P		64	.9	
LEAR	09	0818	0838	0921	S08	E50	.762		13.1	63	SF	3	C		75		F
RAMY	09	1211	1215	1218	S28	E60	.873		14.0	7	SN	3	C		28		

Hα SOLAR FLARES

APRIL 1982

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	09	1334	1334	1406	S12	E79	.978		15.5	32	SF	3	C		13		K
RAMY	09	1334	1356	1406	S12	E79	.978		15.5	32	SN	3	C				K
RAMY	09	1348	1405	1417	S28	E59	.865		14.0	29	SN	3	C		59		
HOLL	09	1859E	1907U	1923	N14	E36	.656		12.5	24	SF	3	C		35		
HOLL	09	1859E	1905U	1920	S09	E48	.739		13.4	21	SF	3	C		33		
HOLL	09	1951	1955	2001	N14	E34	.633		12.4	10	SF	2	C		29		F
HOLL	09	2006	2010	2036D	S13	E76	.966		15.5	30D	SF	3	C				
HOLL	09	2106	2113	2126D	N14	E34	.633		12.4	20D	SF	2	C		43		F
LEAR	09	2350	2352	0024	S27	E51	.796		13.8	34	SB	3	C		96		FE
PEKG	09	2353E	2359	0013	S27	E51	.796		13.8	20	1B		C	2359	126	2.1	E
LEAR	10	0112	0112	0127	N04	W36	.606		7.4	15	SN	3	C		26		F
LEAR	10	0152	0207	0246	S28	E52	.808		14.0	54	SN	3	C		34		F
LEAR	10	0218	0243	0326	N05	W37	.623		7.3	68	1B	3	C		378		FE
PEKG	10	0230E	0243	0320	N05	W39	.649		7.2	50	1N		C	0243	378	5.1	F
LEAR	10	0238	0243	0301	S05	E29	.483		12.3	23	SN	3	C		61		F
PEKG	10	0241E	0243	0253	S06	E29	.482		12.3	12	SN		C	0243	67	.8	E
PEKG	10	0243	0246	0320D	S27	E48	.768		13.7	37D	SN		C	0246	126	2.0	E
YUNN	10	0507E	0508	0510D	N15	E30	.593		12.5	3D	SN		P		48	.6	
LEAR	10	0510	0510	0516	S28	E50	.790		14.0	6	SN	3	C		21		
MANI	10	0511E	0511U	0517D	S28	E51	.799		14.0	6D	SN	1	V		20	.3	
YUNN	10	0531	0534	0535D	N15	E30	.593		12.5	4D	SN		P		64	.8	
LEAR	10	0625	0628	0637	S06	E29	.482		12.4	12	SN	3	C		72		F
MANI	10	0626E	0626U	0629D	S07	E30	.497		12.5	3D	SF	1	V		20	.2	F
LEAR	10	0655	0658	0718	S06	E27	.452		12.3	23	1B	3	C		212		FE
YUNN	10	0658E	0658U	0713	S05	E27	.452		12.3	15	SB		P	0658	64	.7	
LEAR	10	0938	0940	0946D	S07	E26	.436		12.4	8D	1B	3	C		245		FE
HOLL	10	1351	1352	1407	S06	E23	.389		12.3	16	SF	3	C		24		
HOLL	10	1445	1507	1534	S27	E45	.739		14.0	49	SN	3	C		70		F
HOLL	10	1535	1538	1540	N09	W56	.846		6.4	5	SF	3	C		16		F
HOLL	10	1701	1702	1721	S29	E44	.737		14.0	20	SN	3	C		71		F
PALE	10	1854E	1854U	2019	N17	E06	.403		11.2	85	1B	2	C		205		FE
HOLL	10	2034	2041	2102	S29	E42	.717		14.0	28	SF	3	C		57		
LEAR	10	2315	2350	0052	N16	E24	.536		12.8	97	1N	3	C		206		F
HOLL	10	2335E	2351	0040	N17	E25	.556		12.9	65	SN	3	C		123		F
HOLL	10	2335E	2339U	0015D	S05	E18	.308		12.3	40D	SB	3	C		100		F
LEAR	10	2335	2340	0033	S05	E18	.308		12.3	58	SB	3	C		157		FE
LEAR	10	2336	2350	0052	N16	E24	.536		12.8	76	1N	3	C		206		F
HOLL	10	2337	2338	0017D	N11	E21	.453		12.6	40D	SF	3	C		47		
HOLL	11	0031	0032	0041D	S29	E39	.688		13.9	10D	SN	3	C		50		
LEAR	11	0032	0032	0052	S28	E40	.693		14.0	20	SN	3	C		66		
YUNN	11	0335E	0344	0401	S05	E16	.275		12.3	26	SB		P		80	.9	
LEAR	11	0335	0349	0417	S05	E15	.258		12.3	42	SB	3	C		95		K
LEAR	11	0335	0336	0417	S05	E15	.258		12.3	42	1B	3	C		206		UFK
PEKG	11	0336E	0337	0412	S05	E15	.258		12.3	36	SN		C	0337	118	1.2	E
LEAR	11	0444	0452	0501	S06	E16	.274		12.4	17	SB	3	C		91		FE
LEAR	11	0505	0508	0514	S05	E15	.258		12.3	9	SF	3	C		34		
LEAR	11	0507	0508	0512	S27	E37	.656		14.0	5	SN	3	C		38		
LEAR	11	0747	0749	0755	S07	E15	.258		12.4	8	SB	3	C		48		E
LEAR	11	0842	0847	0904	N14	E13	.403		12.3	22	SN	3	C		76		
HOLL	11	1444	1444	1457	S05	E10	.174		12.4	13	SF	3	C		32		F
HOLL	11	1539	1545	1551	N16	E10	.408		12.4	12	SN	3	C		38		F
HOLL	11	1559	1600	1605	S28	E30	.588		13.9	6	SN	3	C		123		
HOLL	11	1636	1654	1718	N16	E09	.401		12.4	42	SN	3	C		48		F
HOLL	11	1842	1852	2015	N16	E08	.396		12.4	93	1B	3	C		208		E
HOLL	11	1952	1956	2014	S05	E07	.122		12.4	22	SN	3	C		133		
LEAR	11	2328E	2337	0049	N16	E05	.382		12.4	81	1B	3	C		320		FE
MANI	11	2330E	2336	2348	N17	E04	.395		12.3	18	1B	1	V		250	2.8	FE
YUNN	12	0050E	0050U	0054	S05	E03	.054		12.3	4	SN		P	0050	32	.3	D
YUNN	12	0118	0121	0234	N16	E06	.385		12.5	76	SN		C		48	.5	
LEAR	12	0118	0143	0157	N16	E05	.381		12.4	39	SN	3	C		147		
PEKG	12	0210E	0211	0220	S05	E03	.054		12.3	10	SF		P	0211	21	.2	E
LEAR	12	0210	0212	0227	S05	E03	.054		12.3	17	SN	3	C		48		
YUNN	12	0215E	0215U	0228	S05	E03	.054		12.3	13	SB		P	0215	32	.3	D
YUNN	12	0317	0322	0338	N07	W65	.914		7.3	21	1B		C		80		
LEAR	12	0323E	0335	0351	N05	W66	.919		7.2	28	1N	3	C		200		F
PEKG	12	0326	0332	0400	N07	W65	.914		7.3	34	SF		P	0332	67		E
PEKG	12	0413	0421	0450	S05	E01	.023		12.3	37	SF		P	0421	46	.5	D
LEAR	12	0415	0423	0440	S06	E02	.035		12.3	25	SN	3	C		53		
YUNN	12	0418	0422U	0437	S05	E01	.023		12.3	19	SN		P	0422	48	.5	D

Hα SOLAR FLARES

APRIL 1982

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	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	12	0727	0728	0737	S12	E10	.202		13.1	10	SF	3	C		35		F
LEAR	12	0905	0906	0913	S27	E21	.486		14.0	8	SN	3	C		37		
RAMY	12	1254	1258	1317	N17	W01	.389		12.5	23	SN	3	C		106		
HOLL	12	1315	1316	1326	N18	W16	.479		11.4	11	SN	3	C		85		F
HOLL	12	1458	1459	1530	S07	E05	.089		13.0	32	SF	3	C		67		F
HOLL	12	1544	1546	1550	N18	E00	.404		12.7	6	SN	3	C		63		
HOLL	12	1608	1609	1618	S14	E41	.658		15.7	10	SN	3	C		65		
HOLL	12	1610	1613	1621	S27	E15	.431		13.8	11	SB	3	C		87		
BIGB	12	1611	1614	1626	S21	E20	.416		14.2	15	SN	3	C	1614	60	.7	
BIGB	12	1829	1832	1852	S14	E42	.670		15.9	23	SN	3	C	1832	60	.8	
HOLL	12	1830	1832	1843D	S14	E40	.645		15.8	13D	SN	3	C		127		F
HOLL	12	1850	1906	1918D	N07	W73	.961		7.3	28D	SF	3	C				
LEAR	13	0244	0300	0340	S09	W00	.056		13.1	56	SF	3	C		87		F
LEAR	13	0254	0300	0319	S13	E35	.577		15.7	25	SN	3	C		59		F
YUNN	13	0317E	0317U	0336	S07	W03	.056		12.9	19	SN		P	0317	32	.3	E
YUNN	13	0317E	0317U	0327	S11	E03	.105		13.4	10	SF		P	0317	64	.7	
YUNN	13	0423E	0423U	0427	S12	E32	.533		15.6	4	SF		P	0423	32	.4	D
LEAR	13	0440	0500	0608	S11	E01	.093		13.3	88	SN	3	C		106		F
PEKG	13	0455	0509	0600	S11	W00	.091		13.2	65	SN		P	0509	97	1.0	E
YUNN	13	0807	0811	0823	S05	W30	.498		11.1	16	SN		C		16	.2	DG
PEKG	13	0840	0850	0859	N06	W85	.997		7.0	19	SN		P	0850	50		E
YUNN	13	0844	0847	0859	N06	W89	1.000		6.7	15	1F		C		48		A
HOLL	13	1631	1633	1658	N18	W20	.514		12.2	27	SN	3	C		95		F
HOLL	13	2022	2036	2040	S12	W60	.862		9.3	18	SF	3	C		41		
HOLL	13	2122	2123	2127	S12	W59	.853		9.5	5	SF	3	C		22		
LEAR	14	0100	0102	0140	S06	W22	.373		12.4	40	1B	3	C		463		FE
PEKG	14	0101	0104	0131	S05	W23	.389		12.3	30	1N		C	0104	210	2.4	CE
MANI	14	0102E	0102	0118	S05	W21	.357		12.5	16	1B	1	V		375	4.1	
PALE	14	0105E	0105U	0137D	S06	W22	.373		12.4	32D	SF	2	C		32		
PEKG	14	0121	0126	0137	S04	W24	.406		12.3	16	SN		C	0126	105	1.2	E
LEAR	14	0152	0155	0206	S14	W62	.879		9.4	14	SB	3	C		101		
PEKG	14	0155	0157	0207	S13	W62	.879		9.4	12	SF		C	0157	17	.4	D
LEAR	14	0204	0205	0209	S26	W03	.350		13.9	5	SF	3	C		43		
LEAR	14	0236	0249	0545	S27	W03	.366		13.9	189	2B	3	C		503		ZU
MANI	14	0238E	0250	0326D	S27	W02	.365		14.0	48D	2B	1	V		490	5.4	ZU
PEKG	14	0238	0300	0423	S27	W01	.364		14.0	105	2B		C	0300	526	5.8	F
LEAR	14	0417	0420	0425	S04	W26	.438		12.2	8	SN	3	C		22		
PEKG	14	0418E	0419	0423	S04	W26	.438		12.2	5	SF		P	0419	42	.5	E
LEAR	14	0418	0426	0523	S09	W14	.246		13.1	65	SN	3	C		135		F
PEKG	14	0419E	0419	0428	S09	E14	.246		15.2	9	SF		P	0419	34	.4	D
YUNN	14	0422E	0426U	0456D	S28	E00	.379		14.2	34D	SB		P	0426	129	1.4	
YUNN	14	0422E	0422U	0424	S04	W26	.438		12.2	2	SN		P	0422	16	.2	D
PEKG	14	0423	0439	0453	S27	W00	.363		14.2	30	SF		C	0439	105	1.2	E
YUNN	14	0426E	0426U	0456D	S10	W14	.251		13.1	30D	SB		P	0426	96	1.0	E
PEKG	14	0428	0439	0450	S10	W14	.251		13.1	22	SN		P	0439	126	1.3	E
LEAR	14	0442	0456	0514	N17	W21	.511		12.6	32	SF	3	C		74		
YUNN	14	0513E	0513U	0528	S27	E00	.363		14.2	15	SN		P	0513	64	.7	B
LEAR	14	0548	0551	0633	N17	W22	.522		12.6	45	SF	3	C		20		K
LEAR	14	0548	0606	0633	N17	W22	.522		12.6	45	1B	3	C		194		FEK
PEKG	14	0600	0604	0617	N19	W22	.543		12.6	17	1N		C	0604	252	3.1	E
MANI	14	0600	0604	0615	N16	W21	.501		12.7	15	1B	1	V		195	2.4	
LEAR	14	0623	0624	0630	S14	W64	.894		9.5	7	SN	3	C		36		
LEAR	14	0811	0814	0824	N01	W30	.510		12.1	13	SF	3	C		22		F
YUNN	14	0813E	0814	0822	S04	W27	.453		12.3	9	SN		P		32	.4	E
YUNN	14	0813E	0814	0841	N18	W24	.552		12.5	28	SN		P		16	.2	E
RAMY	14	1155E	1157U	1213	N18	W25	.562		12.6	18	SB	3	C		148		
RAMY	14	1310	1359	1424	S03	W31	.515		12.2	74	SN	3	C		79		
HOLL	14	1326E	1329	1336D	N01	W14	.267		13.5	10D	SN	3	C		168		F
HOLL	14	1356E	1358U	1409D	S03	W31	.515		12.3	13D	SF	3	C		37		F
HOLL	14	1534E	1534U	1545D	S25	W10	.367		13.9	11D	SF	3	C		28		F
LEAR	14	2349	2349	0002	S09	E13	.230		16.0	13	SF	3	C		39		
LEAR	15	0435	0446	0541	S14	E04	.161		15.5	66	SN	3	C		102		F
PEKG	15	0443E	0447	0454	S13	E02	.133		15.3	11	SF		C	0447	139	1.4	E
LEAR	15	0453	0458	0532	S09	W28	.469		13.1	39	SB	3	C		76		FE
PEKG	15	0502	0507	0510	S08	W29	.483		13.0	8	SF		C	0507	67	.8	E
LEAR	15	0512	0513	0518	N17	W35	.660		12.6	6	SB	3	C		21		E
LEAR	15	0745	0750	0803	S09	W30	.499		13.1	18	SF	3	C		26		
LEAR	15	0907	0910	0920	N01	E55	.822		19.5	13	SF	3	C		32		H
WEND	15	0908	0909	0915	S01	E57	.839		19.7	7	SF		C	0909	44	.8	H

Hα SOLAR FLARES

APRIL 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		CONC.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
WEND	15	0947	0949	0955	N18	W39	.709		12.5	8	SF		C	0949	31	.4	
WEND	15	1033	1035	1043	N19	W35	.674		12.8	10	SN		C	1035	44	.6	H
RAMY	15	1203	1206	1210	N18	W39	.709		12.6	7	SN	3	C		39		
WEND	15	1206E		1212	N19	W36	.684		12.8	6	SN		E	1206	50	.7	
RAMY	15	1240	1240	1308	N18	W40	.719		12.5	28	SN	3	C		28		
HOLL	15	1322	1327	1342	S08	W33	.542		13.1	20	SF	3	C		124		
RAMY	15	1322	1324	1343	S10	W32	.530		13.2	21	SN	3	C		188		
HOLL	15	1323	1323	1355	S06	W40	.640		12.6	32	SF	3	C		20		
RAMY	15	1354	1413	1508	S18	E26	.473		17.5	74	SF	3	C		46		
BIGB	15	1708	1709	1716	N19	W42	.745		12.6	8	SN	3	C	1709	70	1.0	
HOLL	15	1708	1709	1716	N19	W42	.745		12.6	8	SN	3	C		39		
HOLL	15	1825	1829	1835	N00	W37	.607		13.0	10	SF	3	C		37		F
RAMY	15	1826	1829	1832	N02	W32	.543		13.4	6	SN	3	C		26		
WEND	16	0812	0814	0820	S01	W82	.990		10.2	8	SN		C	0814	19		
PEKG	16	0830E	0831U	0836	S02	W82	.990		10.2	6	SN		C	0831	13		DJ
PEKG	16	0856	0920	0930D	S02	W82	.990		10.2	34D	SF		P	0920	17		D
WEND	16	0920	0924	0940	S01	W82	.990		10.2	20	SF		C	0924	19		
WEND	16	0950	0959	1023D	S01	W83	.992		10.2	33D	SN		C	0953	25		
WEND	16	1146	1152	1158	N07	W39	.655		13.6	12	SF		C	1152	106	1.4	
WEND	16	1148	1150	1154	S01	W84	.994		10.2	6	SF		C	1150	32		
WEND	16	1417	1420	1423	N17	W60	.894		12.1	6	SN		C	1420	50	1.1	
HOLL	16	1417	1417	1426	N16	W64	.920		11.8	9	SF	3	C		21		
RAMY	16	1417	1417	1425D	N19	W62	.912		11.9	8D	SB	3	C		24		
BIGB	16	1850	1901	1938	S10	W18	.315		15.4	48	SN	3	C	1901	80	.9	
HOLL	16	2122	2125	2137	S04	W90	1.000		10.1	15	SN	3	C				
BIGB	16	2122	2125	2137	S04	W09	.158		16.2	15	SN	3	C	2125	90	.9	
YUNN	17	0101	0108	0128	S16	E08	.227		17.6	27	1B		C		209	2.2	
MANI	17	0102E	0105	0124	S17	E08	.241		17.6	22	SB	1	V		120	1.3	FE
LEAR	17	0102	0104	0129	S17	E08	.241		17.6	27	SB	3	C		141		FE
LEAR	17	0630	0634	0654D	S17	E04	.211		17.6	24D	SN	3	C		127		F
YUNN	17	0630	0634	0642D	S16	E04	.195		17.6	12D	SN		P		80	.8	
WEND	17	0649E		0713	S17	E01	.201		17.4	24	SN		C	0649	113	1.2	
BIGB	17	1525	1538	1615	S18	W01	.218		17.6	50	SN	3	C	1538	70	.7	
HOLL	17	1929	1931	1938	N05	W58	.856		13.5	9	SF	3	C		25		
LEAR	18	0211	0222	0250	S18	W08	.256		17.5	39	SN	3	C		89		F
LEAR	18	0401	0404	0409	S17	W04	.212		17.9	8	SN	3	C		33		
LEAR	18	0548	0551	0554	S17	W04	.212		17.9	6	SF	3	C		30		
LEAR	18	0708E	0709	0718	N14	W79	.987		12.4	10	SF	3	C				
RAMY	18	1200E	1237	1313	S18	W15	.331		17.4	73	SN	3	C		99		
RAMY	18	1318	1318	1326	S19	W15	.342		17.4	8	SF	3	C		34		
RAMY	18	1338	1338	1344	S17	W14	.309		17.5	6	SF	3	C		29		
RAMY	18	1352	1403	1407	S19	W16	.354		17.4	15	SF	3	C		31		
BIGB	18	1509	1509	1521	S10	W40	.641		15.6	12	SF	3	C	1509	70	.9	
HOLL	18	1606	1620	1647	S19	W14	.330		17.6	41	SN	3	C		134		
RAMY	18	1607	1618	1634	S19	W13	.319		17.7	27	SN	3	C		136		
BIGB	18	1608	1618	1653	S21	W14	.353		17.6	45	SB	3	C	1618	120	1.3	
BIGB	18	2042	2046	2105	N21	W50	.826		15.1	23	SN	3	C	2046	80	1.3	
BIGB	18	2048	2050	2109	S09	W43	.679		15.6	21	SF	3	C	2050	70	1.0	
HOLL	18	2221	2302	2302D	S18	W22	.421		17.3	41D	SN	3	C		57		
BIGB	18	2239	2252	0004	S19	W21	.416		17.4	85	SN	3	C	2252	90	1.0	
LEAR	19	0430E	0433	0509	S20	W15	.354		18.1	39	SB	2	C		120		FE
ISTA	19	0740E		0745	S08	W33	.543		16.8	5	SF						D
MONT	19	1020	1025	1041	S20	W37	.627		16.7	21	SF		C	1025	50		E
PALE	19	1755	1814	1840	S21	W33	.583		17.3	45	SB	3	C		102		E
RAMY	19	1810	1813	1854D	S19	W33	.573		17.3	44D	1B	3	C		245		
BIGB	19	1811	1813	1905	S18	W32	.555		17.4	54	1B	3	C	1813	180	2.2	
RAMY	21	1251	1257	1325	N11	E52	.811		25.4	34	SF	3	C		26		
LEAR	22	0237	0237	0247	N18	E36	.673		24.8	10	SN	3	C		29		
BIGB	22	1454E	1504	1647	N14	E48	.780		26.2	113	1B	3	P	1504	320	5.0	
BIGB	22	1746	1751	1759	N19	E20	.516		24.2	13	SN	3	C	1751	80	.9	
RAMY	22	1754	1947	2017	N19	E30	.617		25.0	143	SF	3	C		55		
RAMY	22	1820	1853	1906	N09	E35	.610		25.4	46	SF	3	C		105		
RAMY	22	1820	1823	1840	N22	E54	.860		26.8	20	SF	3	C		20		
BIGB	22	2157	2159	2208	N19	E23	.545		24.6	11	SN	3	C	2159	70	.8	
RAMY	22	2157	2159	2207	N19	E23	.545		24.6	10	SN	3	C		35		
RAMY	22	2211	2214	2215	N12	E37	.650		25.7	4	SF	3	C		51		

Hα SOLAR FLARES

APRIL 1982

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PEKG	23	0138E	0145	0151D	N02	W08	.184		22.5	13D	SF		P	0145	168	1.8	E
PEKG	23	0144E	0144	0149	N20	E22	.545		24.7	5	SF		C	0144	139	1.7	E
LEAR	23	0415E	0416U	0421	N19	E26	.574		25.1	6	SN	2	C		42		F
LEAR	23	0852	0853	0857	N21	E44	.770		26.7	5	SF	3	C		22		
PEKG	23	0903	0904	0930	N21	E43	.761		26.6	27	1N		C	0904	143	2.3	E
LEAR	23	0903	0904	0926D	N22	E44	.775		26.7	23D	SN	2	C		74		
WEND	23	1004E		1014D	N25	E22	.599		25.1	10D	SF		P	1009	37	.4	
RAMY	23	1245	1246	1348	N22	E42	.756		26.7	63	SF	3	C		68		
RAMY	23	1441	1502	1550	N22	E43	.766		26.8	69	SN	3	C		63		
RAMY	23	1635	1638	1649	N18	E16	.467		24.9	14	SN	3	C		66		F
BIGB	23	1636	1637	1655	N18	E16	.467		24.9	19	SN	3	C	1637	80	.9	
RAMY	23	1822	1824	1831	N21	E41	.741		26.8	9	SF	3	C		26		
BIGB	23	2311	2314	2316	N22	E39	.728		26.9	5	SN	3	C	2314	90	1.2	
BIGB	23	2357	0002	0021	N17	E12	.422		24.9	24	SN	3	C	0002	110	1.2	
LEAR	23	2358	0002	0014	N17	E12	.422		24.9	16	SN	3	C		28		
PEKG	24	0005E	0006	0015	N18	E13	.442		25.0	10	SN		P	0006	93	1.1	E
LEAR	24	0208	0208	0218	N21	E35	.682		26.7	10	SN	3	C		24		
LEAR	24	0219	0228	0244	N17	E11	.413		24.9	25	SN	3	C		121		F
LEAR	24	0256	0256	0313	N08	E13	.313		25.1	17	SF	3	C		27		
LEAR	24	0625	0626	0654	N08	E12	.302		25.2	29	SN	3	C		51		F
PEKG	24	0625	0628	0648	N09	E12	.314		25.2	23	SN		P	0628	97	1.0	U
LEAR	24	0635	0637	0648	N19	E12	.448		25.2	13	SB	3	C		119		H
PEKG	24	0635E	0636	0644	N20	E12	.462		25.2	9	SN		P	0636	100	1.2	D
MANI	24	0637E	0637	0643D	N18	E12	.434		25.2	6D	SB	1	V		90	1.0	
RAMY	24	1120	1137U	1153	N21	E12	.476		25.4	33	SN	3	C		38		
RAMY	24	1137E	1137	1147	N03	W64	.902		19.7	10	SN	3	C		39		F
RAMY	24	1138	1138	1147	N22	E31	.650		26.8	9	SN	3	C		21		F
RAMY	24	1216	1233	1236	N18	E06	.401		25.0	20	SF	3	C		24		F
RAMY	24	1252	1252	1323	N10	E07	.283		25.1	31	SB	3	C		67		FE
RAMY	24	1509	1513	1528	N18	E08	.410		25.2	19	SF	3	C		47		
RAMY	24	1552	1554	1600	N09	E07	.268		25.2	8	SN	3	C		27		
HOLL	24	1555E	1555U	1705D	N05	E08	.220		25.3	70D	SF	3	C		59		
RAMY	24	1627	1628	1746	N09	E06	.260		25.1	79	SN	3	C		38		
HOLL	24	1710E	1720	1728	N09	E06	.260		25.2	18	SF	3	C		29		
HOLL	24	1759	1814	1821	N09	E05	.254		25.1	22	SF	3	C		23		
HOLL	24	1833	1835	1845	S03	W44	.694		21.5	12	SF	3	C		63		
LEAR	25	0021	0044	0112	N05	E04	.183		25.3	51	SN	3	C		87		F
LEAR	25	0125	0127	0147	N04	E03	.161		25.3	22	SB	3	C		105		FE
MANI	25	0126E	0127	0141	N04	E03	.161		25.3	15	SN	1	V		100	1.0	F
PEKG	25	0129E	0131	0140	N05	E03	.177		25.3	11	SB		C	0131	135	1.4	E
PEKG	25	0255E	0257	0303	N09	W00	.238		25.1	8	SN		C	0257	59	.6	D
LEAR	25	0332	0332	0340	N18	W02	.388		25.0	8	SF	3	C		31		F
MANI	25	0333E	0333U	0338	N18	W02	.388		25.0	5	SF	1	V		25	.3	F
LEAR	25	0536	0537	0545	N16	W05	.364		24.9	9	SF	3	C		33		F
LEAR	25	0551	0559	0626	N16	W05	.364		24.9	35	SF	3	C		44		F
PEKG	25	0701	0705	0730	N23	E16	.528		26.5	29	SF		C	0705	42	.5	E
RAMY	25	1155	1203	1216	S11	W20	.354		24.0	21	SF	3	C		31		F
RAMY	25	1205	1207	1224	N06	W02	.190		25.4	19	SN	3	C		35		
RAMY	25	1343	1348	1404	S05	W58	.846		21.2	21	SF	3	C		24		
RAMY	25	1409	1438	1447	S05	W58	.846		21.2	38	SF	3	C		23		
BIGB	25	1759	1814	1827	N09	E05	.253		26.1	28	SF	3	C	1814	100	1.0	
BIGB	25	2031	2035	2100	N08	W02	.224		25.7	29	SN	3	C	2035	80	.8	
HOLL	25	2032	2034	2045	N10	W10	.306		25.1	13	SF	3	C		128		F
HOLL	25	2141	2141	2200	N03	W47	.738		22.4	19	SF	3	C		16		F
HOLL	25	2143	2144	2218	N13	W13	.374		24.9	35	SF	3	C		50		F
BIGB	25	2143	2145	2204	N09	W09	.283		25.2	21	SN	3	C	2145	80	.8	
HOLL	25	2144	2144	2205	N15	W11	.384		25.1	21	SF	3	C		26		F
BIGB	25	2340	2345	0030	N03	W02	.140		25.8	50	SN	3	C	2345	70	.7	
LEAR	26	0108	0109	0130	N20	W12	.459		25.1	22	SN	3	C		57		F
PALE	26	0214	0216	0221	S04	W63	.889		21.4	7	SF	3	C		50		
PALE	26	0217	0217	0220	N06	W37	.622		23.3	3	SF	3	C		44		
LEAR	26	0555	0611	0629	N20	W11	.453		25.4	34	SN	3	C		58		
PEKG	26	0636E	0636	0705	S03	W67	.919		21.2	29	SN		C	0636	42		E
RAMY	26	1154	1155	1357	N20	E07	.432		27.0	123	SN	3	C		162		
RAMY	26	1523	1531	1543	N11	W21	.440		25.1	20	SF	3	C		40		
BIGB	26	2310	0002	0023D	N15	W27	.548		24.9	73D	SN	3	P	0002	160	1.9	
LEAR	26	2358	0001	0015D	N15	W27	.548		25.0	17D	1N	3	C		196		F
ISTA	27	0750		0757	N22	W03	.450		27.1	7	SN						D

Hα SOLAR FLARES

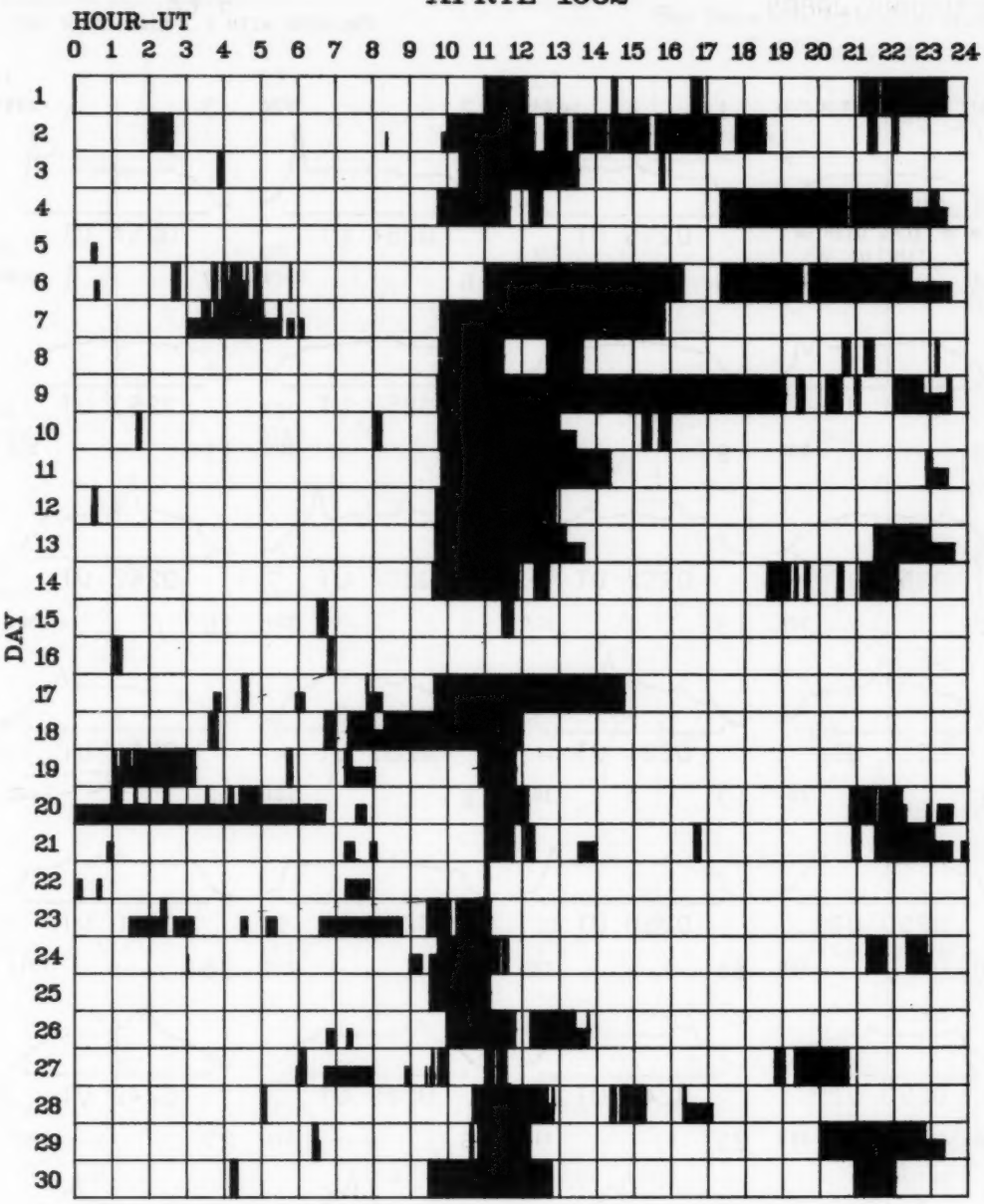
APRIL 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE APR	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MANI	27	0754E	0756	0800	N22	W06	.457		26.9	6	SN	1	V		105	1.2	F
MONT	27	1025	1027	1030	N21	W05	.439		27.1	5	SN		C	1027	180		
RAMY	27	1114	1115	1115D	S20	E66	.913		2.4	1D	SF	3	C		16		K
RAMY	27	1114	1229	1229D	S20	E66	.913		2.4	75D	SF	3	C		93		K
RAMY	27	1218	1218	1235	N11	W31	.567		25.2	17	SF	3	C		64		
RAMY	27	1553	1557	1616	N20	W36	.683		25.0	23	SN	3	C		72		
BIGB	27	1554	1557	1623	N20	W36	.683		25.0	29	SN	3	C	1557	80	1.0	
BIGB	27	1622	1623	1646	S19	E65	.906		2.6	24	1N	3	C	1623	100		
RAMY	27	1622	1623	1640	S19	E65	.906		2.6	18	SN	3	C		26		
HOLL	27	2321	2321	2333	S18	E60	.867		2.5	12	SF	3	C		23		
PALE	28	0135	0142	0152	S17	E60	.866		2.6	17	SF	2	C		64		
LEAR	28	0139	0141	0151	S16	E63	.890		2.8	12	SN	3	C		62		F
PEKG	28	0140	0143	0150	S19	E60	.868		2.6	10	SN		P	0143	93	1.9	E
PALE	28	0158	0200	0207	S17	E59	.858		2.5	9	SF	2	C		39		
LEAR	28	0200	0201	0206	S19	E59	.860		2.5	6	SN	3	C		40		F
LEAR	28	0427	0428	0437	N07	W46	.735		24.7	10	SF	3	C		21		
LEAR	28	0705	0706	0716	S12	W59	.855		23.9	11	SF	3	C		22		
PEKG	28	0740	0747	0758	S18	E57	.841		2.6	18	SF		C	0747	21	.4	E
LEAR	28	0754	0758	0803	N08	W48	.760		24.7	9	SN	3	C		21		
PEKG	28	0755	0756	0756D	N11	W47	.758		24.8	1D	SN		P	0756	63	1.0	E
ISTA	28	0755		0802	N09	W48	.763		24.7	7	SF						E
PEKG	28	0807	0821	0821D	S03	W90	1.000		21.6	14D	SN		P	0821	84		D
HOLL	28	1403	1405	1409	S18	E54	.814		2.6	6	SF	3	C		28		
HOLL	28	1449	1455	1502	N19	W41	.728		25.5	13	SF	3	C		35		
HOLL	28	1517	1524	1541	S17	E53	.803		2.6	24	SF	3	C		135		
HOLL	28	1544	1545	1554	S18	E53	.804		2.6	10	SF	3	C		24		
HOLL	28	1644E	1646	1659	S16	E51	.781		2.5	15	SF	3	C		120		
HOLL	28	1730	1745	1757	S18	E52	.794		2.6	27	SF	3	C		28		
HOLL	28	1816	1825	1847	S18	E52	.794		2.7	31	SF	3	C		90		F
BIGB	28	1816	1825	1852	S18	E52	.794		2.7	36	SN	3	C	1825	100	1.7	
PALE	28	1837	1839	1848	S17	E52	.793		2.7	11	SF	3	C		53		
PALE	28	1851	1853	1901	S15	E51	.780		2.6	10	SF	3	C		26		
PALE	28	2105	2112U	2131	N18	W54	.846		24.8	26	1N	3	C		206		
HOLL	28	2105	2107	2133	N20	W53	.844		24.9	28	1B	3	C		199		F
BIGB	28	2107	2112	2129	N18	W54	.846		24.8	22	1N	3	C	2112	190	3.3	
PALE	28	2144	2146	2156	N20	W48	.800		25.3	12	SN	3	C		60		
PALE	29	0200	0203	0204	S16	E42	.680		2.2	4	SF	3	C		23		
LEAR	29	0222	0241	0328	N20	W55	.859		25.0	66	SN	3	C		123		F K
LEAR	29	0222	0224	0328	N20	W55	.859		25.0	66	SF	3	C		71		K
LEAR	29	0222	0224	0307	N11	W52	.809		25.2	45	SF	3	C		72		
PALE	29	0225	0239	0256	N15	W54	.838		25.1	31	SN	3	C		63		F
LEAR	29	0424	0432	0500	N22	W30	.636		26.9	36	SF	3	C		102		F
LEAR	29	0527	0528	0535	N19	W56	.865		25.0	8	SF	3	C		21		
RAMY	29	1713	1717	1719	S19	E37	.628		2.5	6	SF	3	C		26		
RAMY	29	1744	1757	1759	N22	W41	.743		26.7	15	SF	3	C		29		
RAMY	29	1854	1857	1902	S12	W51	.777		26.0	8	SF	3	C		22		
RAMY	29	1855	1858	1905	S18	E37	.625		2.6	10	SF	3	C		21		
RAMY	29	1915	1919	2000D	N10	W68	.935		24.7	45D	1N	3	C		135		F
LEAR	29	2321E	2327	2358	N25	W44	.786		26.7	37	SN	3	C		48		F
LEAR	30	0027	0030	0041	N19	W68	.944		24.9	14	SN	3	C		72		
LEAR	30	0323	0325	0338	S20	E32	.572		2.5	15	SN	3	C		25		
LEAR	30	0336	0339	0343	N24	W46	.798		26.7	7	SF	3	C		39		F
LEAR	30	0429	0429	0437	S18	E32	.562		2.6	8	SN	3	C		19		
LEAR	30	0610	0615	0631	S20	E30	.547		2.5	21	SN	3	C		66		
MANI	30	0612E	0614	0628D	S20	E30	.547		2.5	16D	SF	1	V		40	.5	
ISTA	30	0733		0740	S18	E27	.496		2.3	7	SF						D
LEAR	30	0743	0743	0750	N24	W49	.824		26.6	7	SF	3	C		26		
ISTA	30	0746		0836	S18	E27	.496		2.3	50	1B			758			F
LEAR	30	0754	0757	0845	S20	E29	.535		2.5	51	SB	3	C		176		FEK
LEAR	30	0754	0829	0845	S20	E29	.535		2.5	51	SN	3	C		36		K
RAMY	30	1425	1428	1452	S13	W63	.889		25.9	27	SF	3	C		20		
RAMY	30	1426	1431	1437	S18	E24	.457		2.4	11	SF	3	C		41		
RAMY	30	1535	1538	1549	N16	W76	.977		24.9	14	SN	3	C				
RAMY	30	1549	1549	1603	S18	E23	.444		2.4	14	SF	3	C		25		
PALE	30	1906	1907	1924	S18	E21	.418		2.4	18	SF	2	C		36		F

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

APRIL 1982



Observatories included in total patrol:

Bucharest	Holloman	Learmonth	Monte Mario	Ramey
Catania	Istanbul	Manila	Palehua	Wendelstein
			Purple Mt.	Yunnan

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

24
Apr 82

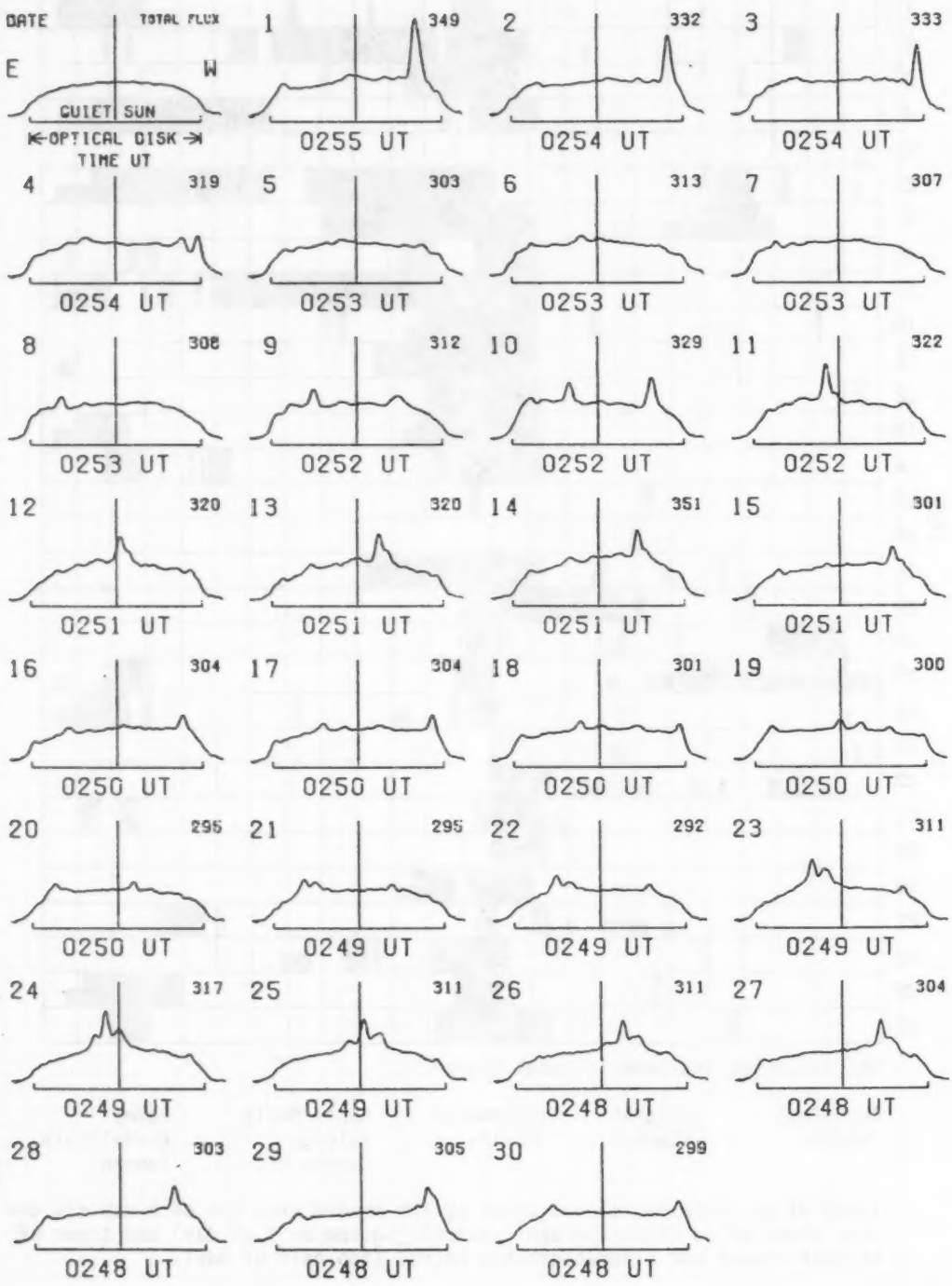
EAST-WEST SOLAR SCANS

APRIL 1982

TOYOKAWA.JAPAN

3 CM

FAN BEAM WITH 1.1 MINUTES OF ARC

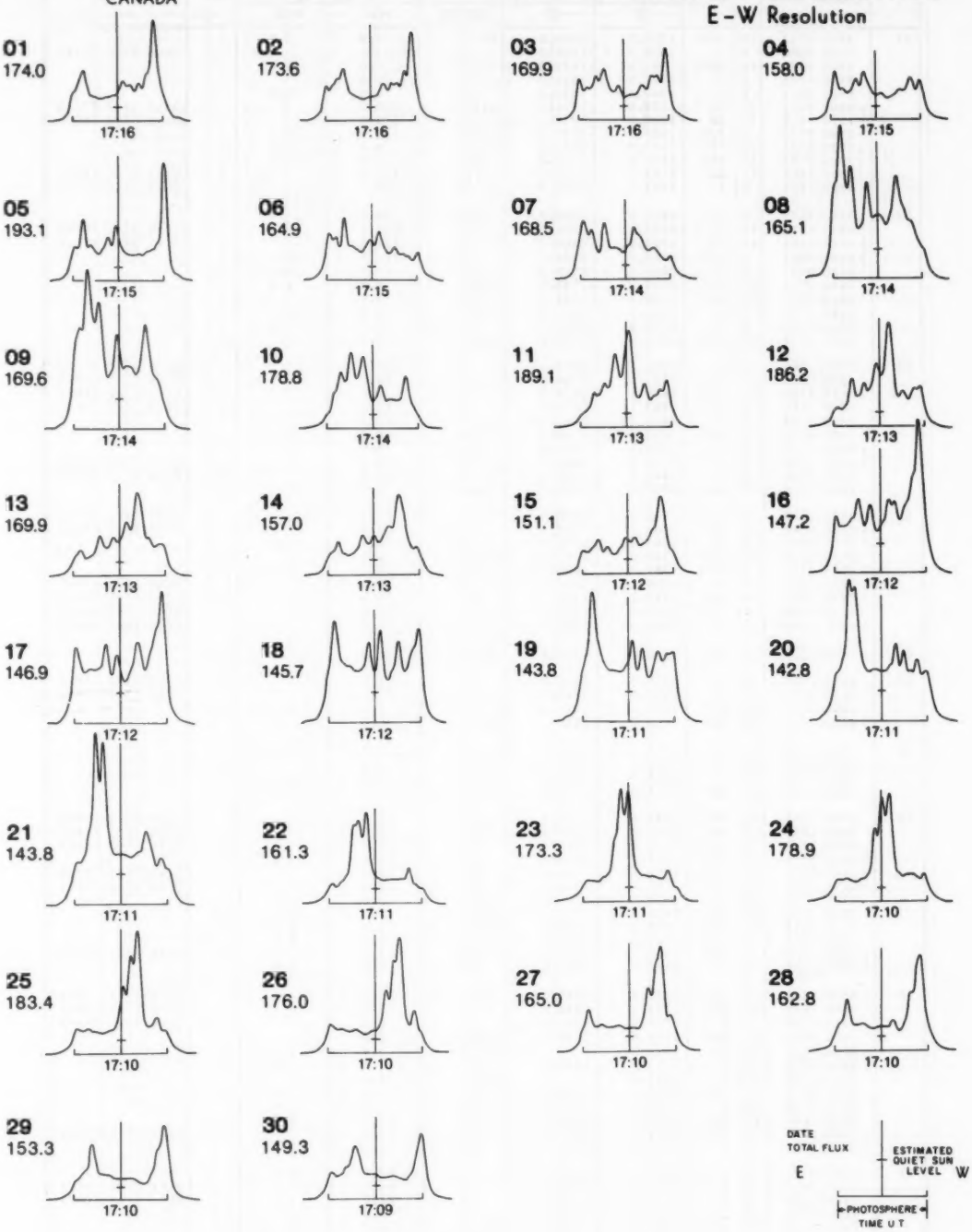


EAST-WEST SOLAR SCANS

APRIL 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1982

	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2800	OTTA	20 GRF	1215.0	1450.0	225.0	4.8	3.8		
	8800	SGMR	8 S	1506.3	1506.5	.2	33.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1615.0	1622.0	90.0	4.0	1.6		
	8400	BERN	3 S	1617.0	1620.0	7.0	40.0			
	2800	OTTA	1 S	1848.6	1848.7	1.0	2.0	1.0		
	8800	PALE	47 GB	1929.5	1931.8	11.8	230.0			QL=6 ST=2 TYP=5
	2695	PALE	47 GB	1929.8	1932.1	6.8	119.0			QL=6 ST=2 TYP=5
	2800	OTTA	4 S/F	1929.9	1932.5	10.1	110.0	34.0		
	2800	OTTA	29 PBI	1940.0	1940.0	65.0	4.0	2.0		
	2800	OTTA	20 GRF	2105.0	2110.0	45.0	2.0	1.2		
	8800	PALE	47 GB	2127.1	2127.8	6.4	430.0			QL=5 ST=2 TYP=5
	8800	LEAR	8 S	2349.6	2349.8	.5	20.0			QL=6 ST=2 TYP=3
02	8400	BERN	4 S/F	0900.0	0908.3	50.00	208.0			
	8800	LEAR	47 GB	0905.1	0908.1	8.7	239.0			QL=6 ST=2 TYP=5
	2695	LEAR	47 GB	0905.1	0908.3	8.0	160.0			QL=6 ST=2 TYP=5
	2695	MANI	4 S/F	0906.9	0908.3	4.6	120.5	40.2		
	8800	MANI	4 S/F	0907.0	0908.3	4.5	87.3	29.1		
	2800	OTTA	20 GRF	1145.0	1255.0	195.0	6.4	3.0		
	2800	OTTA	23 GRF	1540.0	1541.0	35.0	2.4			
	2800	OTTA	1 S	1542.0	1543.0	2.5	2.6	1.3		
	2800	OTTA	8 S	1625.0	1625.2	.4	4.4	2.2		
	2800	OTTA	20 GRF	1815.0	1830.0	45.0	2.2	1.1		
03	2695	LEAR	8 S	0241.6	0241.8	.4	15.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0331.0	0334.0	6.0	20.0			QL=6 ST=2 TYP=3
	2695	ATHN	20 GRF	0636.1	0636.5	1.5	3.0			QL=5 ST=2 TYP=2
	8800	LEAR	8 S	0853.1	0853.3	.5	23.0			QL=6 ST=2 TYP=3
	8400	BERN	3 S	0953.0	0953.3U	1.0	20.0			
	2800	OTTA	21 GRF	1210.0	1240.0	100.0	4.2	2.1		
	2800	OTTA	1 S	1229.5	1230.5	3.0	4.2	2.1		
	2695	SGMR	4 S/F	1229.6	1230.0	3.4	16.0			QL=6 ST=2 TYP=3
	2695	SGMR	8 S	1440.1	1440.6	1.2	16.0			QL=6 ST=3 TYP=3
	2800	OTTA	20 GRF	2000.0	2115.0	140.0	3.4	1.7		
04	8800	LEAR	8 S	0402.5	0402.6	.5	46.0			QL=6 ST=2 TYP=3
	2695	LEAR	47 GB	0402.5	0402.6	.3	57.0			QL=6 ST=2 TYP=5
	2695	MANI	8 S	0402.9	0403.2	.8	54.7	18.2		
	2800	OTTA	21 GRF	1335.0	1355.0	75.0	3.6			
	2800	OTTA	4 S/F	1358.0	1400.2	3.5	32.0	8.0		
	2695	SGMR	8 S	1359.1	1400.1	1.5	36.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	1359.1	1400.3	2.4	29.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	1359.6	1400.5	5.4	10.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1400.0	1400.1	.1	19.0			QL=6 ST=2 TYP=3
05	2800	OTTA	20 GRF	1510.0	1820.0	610.0	34.0	11.6		
07	2695	LEAR	8 S	0829.8	0830.0	.3	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	0843.5	0844.0	.6	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1220.0	1223.0	20.0	6.4	2.8		
	2800	OTTA	20 GRF	1650.0	1656.0	100.0	6.0	3.0		
08	2800	OTTA	1 S	1354.2	1354.5	1.0	3.4	1.5		
	2800	OTTA	23 GRF	1420.0	1650.0	280.0	3.6			
	2800	OTTA	1 S	1535.0	1537.0	10.0	2.0	1.0		
	2800	OTTA	20 GRF	1905.0	1940.0	175.0	2.4	1.6		
09	2695	LEAR	20 GRF	0144.6	0148.6	28.4	13.0			QL=6 ST=2 TYP=2
	8800	LEAR	20 GRF	0144.6	0157.1	30.0	29.0			QL=6 ST=2 TYP=2
	8800	ATHN	4 S/F	1353.0	1356.5	8.0	33.0			QL=5 ST=3 TYP=3
	2800	OTTA	4 S/F	1354.0	1356.0	6.0	16.4	7.0		
	2695	ATHN	4 S/F	1354.8	1356.5	5.3	15.0			QL=5 ST=3 TYP=3
	2695	SGMR	4 S/F	1355.3	1356.3	2.8	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	29 PBI	1400.0	1400.0	60.0	3.4	1.7		
	2800	OTTA	20 GRF	1600.0	1710.0	120.0	2.8	2.0		
	2800	OTTA	21 GRF	1840.0	1935.0	130.0	3.4	1.8		
	2800	OTTA	2 S/F	1849.0	1851.0	3.0	2.4	1.2		
	8800	LEAR	4 S/F	2350.5	2351.6	2.6	17.0			QL=6 ST=2 TYP=3
	2695	PENT	1 S	2351.0	2352.0	2.0	4.0	1.8		
10	8800	LEAR	20 GRF	0226.8	0245.1	50.2	18.0			QL=6 ST=2 TYP=2
	2695	LEAR	20 GRF	0228.1	0242.0	67.9	9.0			QL=6 ST=2 TYP=2
	2695	ATHN	8 S	0938.8	0939.6	1.3	8.0			QL=5 ST=2 TYP=3
	2800	OTTA	22 GRF	1215.0	1222.0	50.0	2.8			
	2800	OTTA	27 RF	1310.0		290.0	3.6	3.3		
	2800	OTTA	24 R	1310.0	1340.0	30.0	3.6	1.8		
	2800	OTTA	24P R	1340.0		245.0	3.6			
	2800	OTTA	26 FAL	1745.0	1800.0	15.0	-3.6	-1.8		
	2800	OTTA	240 R	2000.0	2040.0	40.0	3.4	1.5		
	2695	PENT	21 GRF	2325.0	2350.0	130.0	10.8	5.4		
	2695	LEAR	4 S/F	2333.8	2337.3	6.2	22.0			QL=6 ST=2 TYP=3
	2695	PENT	40 F	2334.0	2337.3	5.0	13.6			
11	2695	MANI	3 S	0335.0	0335.9	2.5	62.5	20.8		
	2695	PALE	8 S	0335.3	0335.6	.8	50.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	0724.0	0724.0	.1	41.0			QL=6 ST=2 TYP=3
	2800	OTTA	8 S	1211.6	1211.7	.2	3.8			
	2800	OTTA	23 GRF	1235.0	1335.0	150.0	8.2	4.1		
	2800	OTTA	2 S/F	1318.0	1320.5	4.0	6.8	3.4		
	2800	OTTA	23 GRF	1520.0	1710.0	350.0	11.8	4.9		
	2800	OTTA	46F C	1559.0	1601.0	5.0	26.0	6.6		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1982

	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
11	2695	SGMR	4 S/F	1559.3	1601.0	2.5	41.0			QL=6 ST=2 TYP=3
	2800	OTTA	8 S	1752.9	1753.0	.5	6.2			
	2800	OTTA	20 GRF	1902.0	1908.0	12.0	4.4	2.2		
	2800	OTTA	1 S	1951.0	1953.0	4.5	3.4	2.4		
	2695	PENT	22 GRF	2205.0	2336.0	215.0	13.6	6.4		
12	2800	OTTA	21 GRF	1140.0	1200.0	105.0	6.8	3.4		
	8400	BERN	3 S	1248.0	1250.1	15.0D	60.0			
	2800	OTTA	1 S	1249.0	1250.2	3.0	7.6	2.8		
	8800	SGMR	8 S	1249.8	1250.1	1.0	40.0			QL=6 ST=2 TYP=3
	2695	SGMR	8 S	1250.0	1250.1	.1	17.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	1250.0	1250.6	2.3	32.0			QL=6 ST=2 TYP=3
	8800	ATHN	47 GB	1250.0	1250.6	2.3	84.0			QL=6 ST=2 TYP=5
	2695	SGMR	8 S	1423.8	1424.6	2.0	18.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1424.0	1424.5	.8	11.0			QL=6 ST=2 TYP=3
	2800	OTTA	3 S	1424.0	1424.9	1.6	13.6	3.4		
	8800	ATHN	8 S	1424.8	1425.1	.8	27.0			QL=6 ST=2 TYP=3
	2695	ATHN	8 S	1424.8	1425.1	.8	44.0			QL=6 ST=2 TYP=3
	2800	OTTA	23 GRF	1435.0	1710.0	460.0	10.0	6.8		
	2800	OTTA	1 S	1457.5	1459.5	7.0	7.6	2.6		
	2695	SGMR	4 S/F	1608.1	1608.8	5.7	32.0			QL=6 ST=2 TYP=3
	8400	BERN	45 C	1608.3	1613.1	12.0	57.0			
	8800	SGMR	8 S	1608.5	1608.6	.3	34.0			QL=6 ST=2 TYP=3
	2800	OTTA	46F C	1608.5	1613.1	8.0	28.0	6.8		
	8800	ATHN	47 GB	1608.6	1609.1	1.9	67.0			QL=6 ST=2 TYP=5
	2695	ATHN	8 S	1608.6	1609.1	1.4	44.0			QL=6 ST=2 TYP=3
	8800	ATHN	47 GB	1613.0	1614.0	4.1	74.0			QL=6 ST=2 TYP=5
	2695	ATHN	4 S/F	1613.0	1614.0	4.1	44.0			QL=6 ST=2 TYP=3
	2800	OTTA	8 S	1827.1	1827.1	.1	5.6			
	2800	OTTA	2 S/F	1829.0	1831.5	4.0	3.4			
	2800	OTTA	20 GRF	2103.5	2105.0	2.0	4.0	2.0		
13	2800	OTTA	20 GRF	1205.0	1220.0	55.0	5.8	4.0		
	2800	OTTA	21 GRF	1628.0	1635.0	30.0	3.8	1.9		
	2800	OTTA	2 S/F	1631.0	1632.2	4.0	5.6	2.6		
	2800	OTTA	21 GRF	1845.0	1900.0	135.0	3.8	1.9		
	2800	OTTA	20 GRF	1930.0	1935.0	28.0	4.6	2.4		
14	2695	PENT	3 S	0059.8	0101.0	2.5	49.0	33.0		
	2695	LEAR	47 GB	0059.8	0101.1	2.8	50.0			QL=6 ST=3 TYP=5
	8800	LEAR	4 S/F	0100.0	0101.1	2.6	20.0			QL=6 ST=3 TYP=3
	2695	PALE	8 S	0100.6	0100.6	1.2	46.0			QL=6 ST=2 TYP=3
	8800	MANI	3 S	0101.0	0102.5	2.3	43.8	14.6		
	2695	MANI	3 S	0101.0	0102.5	2.3	59.4	19.8		
	2695	PENT	29 PBI	0102.3	0102.3	10.0	6.6	3.3		
	8800	LEAR	4 S/F	0238.1	0306.0	81.9	43.0			QL=6 ST=3 TYP=3
	2695	LEAR	47 GB	0238.8	0241.5	81.2	189.0			QL=6 ST=3 TYP=5
	2695	MANI	22 GRF	0240.0	0252.0	27.0	58.8	19.6		
	2695	PALE	47 GB	0240.1	0241.5	1.5	200.0			QL=6 ST=2 TYP=5
	8800	PALE	4 S/F	0252.6	0254.3	10.4	19.0			QL=6 ST=2 TYP=3
	8800	PALE	20 GRF	0303.0	0303.1	10.3	23.0			QL=6 ST=2 TYP=2
	2695	PALE	20 GRF	0303.0	0303.3	16.1	40.0			QL=6 ST=2 TYP=2
	8400	BERN	4 S/F	0600.0	0602.8	10.0	100.0			
	2695	MANI	4 S/F	0600.5	0604.0	4.5	27.4	9.1		
	8800	LEAR	47 GB	0600.6	0602.8	4.9	99.0			QL=6 ST=2 TYP=5
	8800	MANI	4 S/F	0602.0	0603.0	3.0	94.2	31.4		
	2695	LEAR	4 S/F	0602.3	0603.6	2.7	40.0			QL=6 ST=2 TYP=3
	2800	OTTA	46F C	1153.3	1156.7	3.4D	36.0	9.8		
	2800	OTTA	27 RF	1155.0		165.0	2.8	2.6		
	2800	OTTA	24 R	1155.0	1200.0	5.0	2.8			
	2695	SGMR	47 GB	1155.3	1156.6	1.8	51.0			QL=6 ST=2 TYP=5
	2695	ATHN	4 S/F	1155.6	1156.3	2.5	37.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	1155.6	1156.3	2.5	16.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1156.3	1156.6	.3	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	24P R	1200.0		140.0	2.8			
	2800	OTTA	21 GRF	1320.0	1340.0	45.0	3.6	1.8		
	2800	OTTA	1 S	1333.0	1334.0	2.5	3.2	1.6		
	2800	OTTA	26 FAL	1420.0	1445.0	25.0	-2.8	-1.4		
15	2695	LEAR	8 S	0512.6	0512.6	.4	23.0			QL=6 ST=2 TYP=3
	2800	OTTA	8 S	1240.0	1240.2	.5	25.0	12.5		
	2800	OTTA	1 S	2125.5	2126.0	6.0	3.0	1.0		
16	2800	OTTA	S	1402.0	1417.0	15.0D	3.0			
	8400	BERN	4 S/F	1416.3	1416.8	1.0	60.0			
	8800	ATHN	4 S/F	1416.3	1417.0	2.2	45.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1416.6	1416.8	.2	31.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1850.0	1852.0	35.0	2.2	1.1		
	2800	OTTA	1 S	2125.0	2125.5	3.0	5.2	1.7		
17	2695	PENT	4 S/F	0105.0	0108.3	6.0	25.0	9.0		
	2695	LEAR	4 S/F	0106.1	0108.3	4.4	35.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0106.3	0108.1	4.5	36.0			QL=6 ST=2 TYP=3
	2695	MANI	3 S	0106.5	0108.5	3.5	40.3	13.4		
	8800	MANI	3 S	0106.8	0108.5	3.7	54.9	18.3		
	8800	PALE	8 S	0107.8	0108.1	.8	28.0			QL=6 ST=2 TYP=3
	2695	PALE	8 S	0108.3	0108.3	.2	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1505.0	1540.0	180.0	3.4	2.4		
	2800	OTTA	20 GRF	1920.0	2020.0	150.0	3.4	2.0		
	2695	PENT	20 GRF	2230.0	2235.0	30.0	2.4	1.2		
18	2800	OTTA	20 GRF	1600.0	1625.0	50.0	2.4	1.2		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1982

	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
18	2800	OTTA	20 GRF	1900.0	2050.0	125.0	3.0	1.5		
	2695	PENT	21 GRF	2210.0	2330.0	200.0	7.4	3.6		
	2695	PENT	3 S	2253.5	2254.2	4.0	15.0	5.0		
	2695	PALE	8 S	2253.8	2254.0	.8	22.0			QL=6 ST=2 TYP=3
	2695	PENT	1 S	2301.0	2301.2	2.0	3.0	1.5		
	2695	PENT	46F C	2312.0	2317.0	13.0	22.0	6.4		
	2695	PALE	4 S/F	2313.3	2313.6	9.7	20.0			QL=6 ST=2 TYP=3
	8800	PALE	47 GB	2314.3	2315.1	11.3	30.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	2316.1	2316.8	11.2	34.0			QL=6 ST=2 TYP=3
19	8800	ATHN	47 GB	0415.6	0421.1	9.0	82.0			QL=2 ST=2 TYP=5
	2695	ATHN	4 S/F	0416.0	0421.1	7.1	27.0			QL=2 ST=2 TYP=3
	8800	LEAR	47 GB	0416.5	0419.3	30.5	93.0			QL=6 ST=2 TYP=5
	8800	MANI	4 S/F	0417.0	0420.0	7.0	94.4	31.5		
	2695	LEAR	4 S/F	0418.8	0419.1	14.2	33.0			QL=6 ST=2 TYP=3
	2695	MANI	22 GRF	0419.3	0419.5	8.7	21.6	7.2		
	8400	BERN	4 S/F	1017.0	1021.8	13.0	384.0			
	8800	SGMR	47 GB	1017.0E	1021.8	8.3D	310.0			QL=4 ST=2 TYP=5
	8800	ATHN	47 GB	1019.5	1021.8	10.6	400.0			QL=6 ST=2 TYP=5
	2695	SGMR	47 GB	1019.8E	1021.1	6.3D	119.0			QL=4 ST=2 TYP=5
	2695	ATHN	47 GB	1020.0	1022.0	10.1	80.0			QL=6 ST=2 TYP=5
	2800	OTTA	20 GRF	1305.0	1430.0	170.0	3.0	1.5		
	2800	OTTA	46F C	1810.5	1811.5	14.5	105.0	34.0		
	2695	SGMR	47 GB	1810.8	1811.1	2.0	169.0			QL=6 ST=2 TYP=5
	2695	PALE	47 GB	1810.8	1811.1	10.5	260.0			QL=6 ST=2 TYP=5
	8800	SGMR	47 GB	1810.8	1812.1	2.2	180.0			QL=6 ST=2 TYP=5
	8800	PALE	47 GB	1810.8	1812.1	2.8	219.0			QL=6 ST=2 TYP=5
	2695	SGMR	4 S/F	1818.8	1819.8	2.7	30.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1819.3	1819.3	1.2	50.0			QL=6 ST=2 TYP=3
	2800	OTTA	29 PB1	1825.0	1825.0	145.0	5.8	2.9		
21	8800	PALE	47 GB	0202.1	0202.3	.4	210.0			QL=6 ST=2 TYP=5
	2800	OTTA	20 GRF	2050.0	2140.0	250.0	6.0	2.7		
22	2695	LEAR	8 S	0236.1	0236.8	1.2	4.0			QL=6 ST=2 TYP=3
	2800	OTTA		1240.0	1254.3	22.0	170.0			
	2800	OTTA	46F C	1240.0	1312.5	50.0	225.0	89.0		
	8400	BERN	21 GRF	1246.0	1311.9	170.0D	180.0			
	2695	ATHN	4 S/F	1246.3	1254.6	44.2	180.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	1248.6	1254.8	37.4	91.0			QL=6 ST=2 TYP=3
	8800	SGMR	47 GB	1250.3	1252.3	11.3	74.0			QL=6 ST=2 TYP=5
	2800	OTTA		1302.0	1312.5	28.0	205.0			
	2695	SGMR	47 GB	1318.0	1318.1	21.6	90.0			QL=6 ST=3 TYP=5
	8800	SGMR	47 GB	1318.0	1318.5	21.6	60.0			QL=6 ST=3 TYP=5
	2800	OTTA	30 PB1	1330.0	1330.0	390.0	32.0	10.0		
	2800	OTTA	2 S/F	1401.0	1402.1	2.0	6.8			
	2800	OTTA	240 R	2105.0	2150.0	45.0	6.6	3.3		
	2695	PENT	20 GRF	2220.0	0010.0	180.0D	10.6			
23	8800	LEAR	47 GB	0036.8	0036.8	.3	63.0			QL=6 ST=2 TYP=5
	2800	OTTA	20 GRF	1150.0	1155.0	30.0	5.0	2.4		
	2800	OTTA	27A RF	1715.0		240.0	3.4	3.1		
	2800	OTTA	24 R	1715.0	1740.0	25.0	3.4	1.7		
	2800	OTTA	24P R	1741.0		200.0	3.4			
	2800	OTTA	21 GRF	1820.0	1835.0	50.0	3.4	1.8		
	2800	OTTA	1 S	1842.5	1843.0	1.5	2.6	1.3		
	2800	OTTA	26 FAL	2100.0	2115.0	15.0	-3.4	-1.7		
	2695	PENT	20 GRF	2255.0	0000.0	115.0	5.0			
24	2695	LEAR	8 S	0629.5	0629.6	.1	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	1 S	1129.2	1130.0	1.5	6.4	3.0		
	2800	OTTA	20 GRF	1346.0	1349.0	14.0D	2.8			
	2800	OTTA	21 GRF	1620.0	1631.0	30.0	3.2	1.2		
	2800	OTTA	1 S	1625.0	1626.2	3.0	4.2	1.8		
	2800	OTTA	22 GRF	1710.0	1845.0	245.0	8.2	3.0		
	2695	PENT	1 S	2305.8	2306.5	5.0	4.0	2.0		
25	2695	PALE	49 GB	0333.1	0335.3	3.7	1199.0			QL=6 ST=2 TYP=6
	2695	LEAR	8 S	0336.5	0336.8	.3	17.0			QL=4 ST=2 TYP=3
	2800	OTTA	20 GRF	1200.0	1207.0	30.0	6.0	2.8		
	2800	OTTA	21 GRF	1625.0	1650.0	80.0	3.0	1.8		
	2800	OTTA	1 S	1639.0	1640.5	4.0	3.6	1.8		
	2800	OTTA	1 S	1720.0	1720.5	1.0	2.2			
	2800	OTTA	20 GRF	2025.0	2033.0	45.0	6.8	2.3		
	2800	OTTA	240AR	2140.0	2150.0	10.0	3.2			
	2800	OTTA	1 S	2142.0	2143.5	3.0	5.4	2.6		
	2800	OTTA	20 GRF	2225.0	2230.5	30.0	3.2	1.6		
	2695	PENT	20 GRF	2335.0		85.0	3.4	2.0		
26	2695	LEAR	4 S/F	0102.1	0108.0	5.9	11.0			QL=6 ST=2 TYP=3
	2695	PENT	1 S	0107.8	0108.0	1.0	3.4	2.2		
	2695	LEAR	8 S	0845.0	0845.6	2.0	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0845.1	0845.6	1.9	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1335.0	1343.0	70.0	4.2	1.4		
	2800	OTTA	20 GRF	1833.0	1836.0	13.0	4.4	2.0		
	8800	LEAR	8 S	2346.8	2347.1	1.3	11.0			QL=6 ST=2 TYP=3
	2695	PENT	20 GRF	2355.0	0003.0	60.0	8.4	4.2		
	2695	LEAR	4 S/F	2358.1	0002.1	17.9	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	2358.5	0005.3	17.5	11.0			QL=6 ST=2 TYP=3
28	2800	OTTA	21 GRF	1600.0	1720.0	175.0	5.2	2.6		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1982

	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
28	2800	OTTA	1 S	1821.5	1822.1	2.0	2.6	1.3		
	2800	OTTA	3 S	2105.0	2106.9	7.0	11.4	3.6		
	2695	PALE	8 S	2106.5	2106.8	1.1	16.0			QL=6 ST=2 TYP=3
29	2800	OTTA	21 GRF	1105.0	1145.0	280.0	12.8	6.0		
	2800	OTTA	3 S	1115.5	1116.5	3.0	10.0	4.8		
	2800	OTTA	2 S/F	1219.0	1219.5	2.0	5.0	2.4		
	2800	OTTA	2 S/F	1914.0	1918.5	6.0	2.4			
	2695	PENT	20 GRF	2305.0	2350.0	155.0	3.6	2.0		
	8800	LEAR	4 S/F	2323.8	2325.6	4.0	13.0			QL=6 ST=2 TYP=3
30	2695	LEAR	4 S/F	0755.1	0756.1	3.9	8.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1245.0	1455.0	310.0	6.8	3.6		
	2800	OTTA	20 GRF	1845.0		240.0D	4.0			

Observatories:

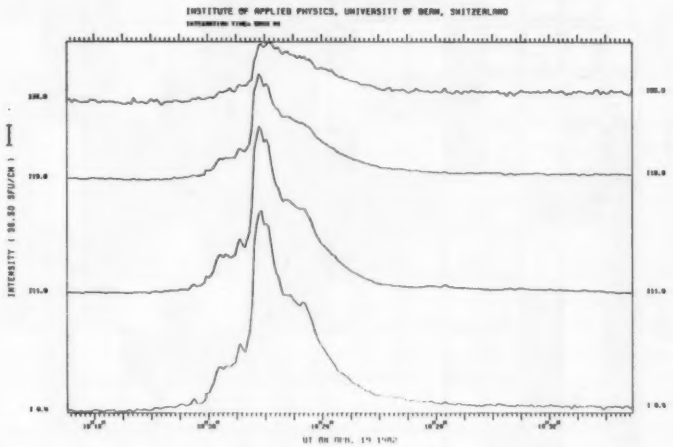
BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

1 Simple 1 6 Minor 22 Simple 3F 27 Rise and Fall 32 Absorption 44 Noise Storm in Progress
2 Simple 1F 7 Minor + 23 Simple 3AF 28 Precursor 40 Fluctuation 45 Complex
3 Simple 2 8 Spike 24 Rise 29 Post Burst Increase 41 Group of Bursts 46 Complex F
4 Simple 2F 20 Simple 3 25 Rise A 30 Post Burst Increase A 42 Series of Bursts 47 Great Burst
5 Simple 21 Simple 3A 26 Fall 31 Post Burst Decrease 43 Onset of Noise Storm 48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

APRIL 19, 1982



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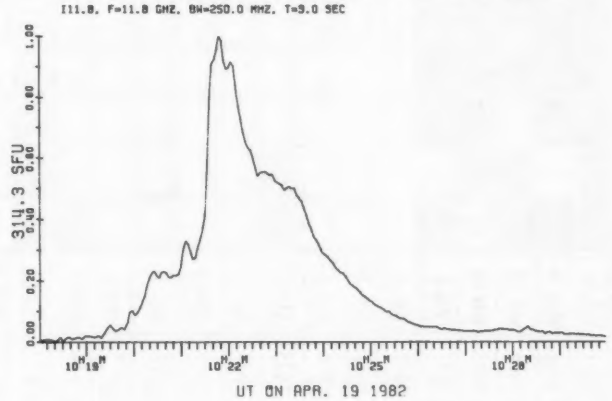
I11.8, F=11.8 GHZ, BW=250.0 MHZ, T=9.0 SEC



UT ON APR. 19 1982

INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2013	NOV 2	AT					TA	TA				AT	A*													TA		
2014	NOV 29				-					-	-				TA		TA	TA		AT			AT				TA	
2015	DEC 26									-	-				-	TA	-	TA	-		-		-		-		-	-
2016	1981 JAN 22	TA	-		AT	T*		-		-	AT	TA			TA					-				AT			TA	
2017	FEB 18			AT		TA								TA		TA		*						AT		TA		TA
2018	MAR 17							AT						-					TA				AT		-		TA		AT	
2019	APR 13	TA		-	-	-					-				TA				*	AT	-		-		AT		-		-	
2020	MAY 10	-	-	-	-	TA	AT	TA		-		TA											*	*						
2021	JUN 6			*							AT				TA			AT												
2022	JUL 3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	JUL 30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TA	-	TA	-	-	-	-	AT	-	-	-	-
2024	AUG 26	-	-		-	-	TA	-	TA	-	-	TA	-	-	-	TA	-	TA	-	-	-	-	TA	-	-	-	-	-	-	-
2025	SEP 22		-		-	-	-	-	-	-	AT	-	TA	-	-	-	TA	-	TA	-	AT	-	-	TA	-	AT	-	TA	-	TA	-
2026	OCT 19	AT	-	TA	-	TA	-	-	-	-	TA	-	TA	-	-	-	-	TA	-	-	-	-	AT	-	TA	-	-	-	-	-
2027	NOV 15		-		-	-	AT	-	AT	-	-	-	-	-	-	-	-	TA	-	TA	-	TA	-	AT	-	-	-	AT	-	-	-
2028	DEC 12	TA	-		-	-	-	-	AT	-	AT	-	-	-	-	-	-	-	AT	-	-	AT	-	TA	-	-	-	-	-	-	-
2029	1982 JAN 8		-		-	-	-	-	TA	-	TA	-	-	-	-	-	-	TA	-	-	-	-	AT	-	-	-	-	-	AT	-	-	-
2030	FEB 4		-		-	-	TA	-	TA	-	TA	-	TA	-	-	-	TA	-	-	-	-	-	-	-	TA	-	-	-	TA	-
2031	MAR 3		-		-	-	-	-	TA	-	TA	-	-	-	TA	-	-	-	-	-	TA	-	TA	-	-	-	-	AT	-
2032	MAR 30		-	TA	-	-	TA	-	-	-	-	-	TA	-	-	-	-	AT	-	TA	-	-	TA	-	-	-	-	-	-	-
2033	APR 26	-	-	AT	-	-	-	-	-																					

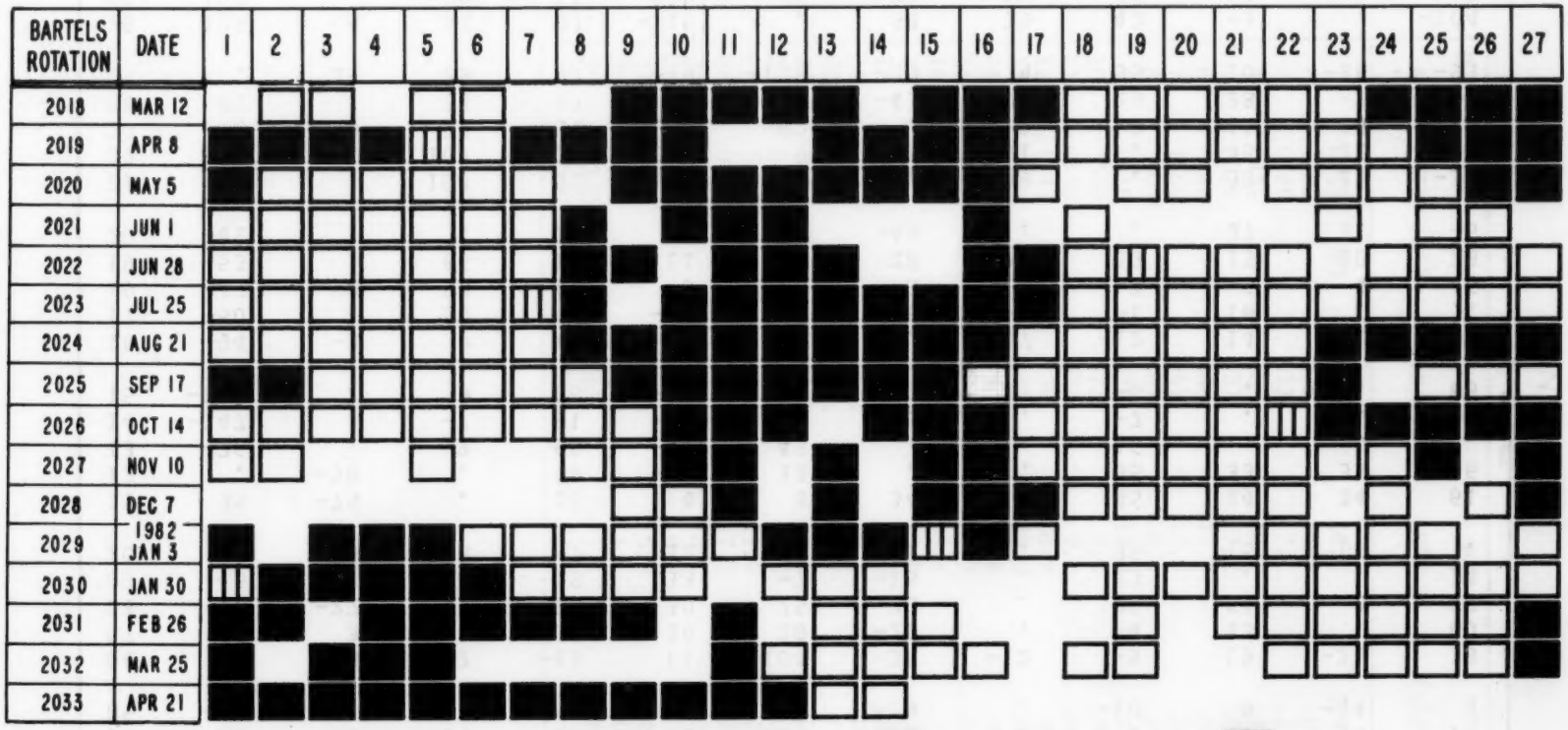
[ ] = definitely towards the sun [ ] = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1981								1982			
day	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL
01	2	16	53	-49	-134	-27	94	41	15	-20	-19	.
02	-51	21	49	.	-87	11	82	34	-6	-44	-9	.
03	-66	17	41	-72	-56	70	55	49	-17	-29	-20	.
04	-56	6	14	-80	-21	104	-1	-3	.	-3	-39	-17
05	-24	28	-17	-67	-7	115	-19	.	-10	9	-44	3
06	23	33	-62	-48	11	104	-36	-12	-5	19	-21	38
07	25	3	.	-33	26	28	-29	.	-4	43	.	60
08	36	-27	-93	-26	30	25	-23	.	25	64	-2	57
09	45	.	-56	-19	33	-7	-16	.	23	.	.	24
10	49	-96	-43	-7	32	.	11	.	36	15	16	.
11	35	-75	.	16	4	8	34	.	45	24	34	61
12	.	-58	.	58	-29	32	.	.	35	33	35	46
13	-76	.	-9	68	-47	43	.	.	16	.	.	.
14	-147	.	-7	81	-37	64	105	.	-7	.	.	.
15	-131	.	9	68	-24	103	.	57	-6	.	.	86
16	-94	-3	0	49	-32	115	.	17	-12	14	21	93
17	-50	.	38	49	-24	167	48	-5	-1	16	.	71
18	-47	50	59	42	-8	218	3	.	-3	5	4	46
19	-53	.	66	16	11	193	-28	-37	33	15	20	28
20	-41	.	.	12	85	115	-45	.	.	27	31	-6
21	13	.	108	31	135	65	.	-39	.	38	25	-38
22	.	.	107	38	124	9	-65	-11	.	48	22	-78
23	72	59	73	52	60	-62	.	-2	9	41	14	-113
24	61	.	34	67	6	-107	-43	35	25	28	-2	-107
25	.	29	29	92	-79	-128	-20	4	35	10	-26	-93
26	126	18	34	64	-115	.	58	39	42	-3	.	-104
27	109	.	28	15	-138	-61	83	17	36	-34	-61	-117
28	50	44	33	-12	-144	-60	96	29	.	.	-56	-122
29	24	62	43	-64	-121	-19	59	.	15		-53	-77
30	-9	50	38	-84	-75	67	55	24	0		.	-26
31	-4		1	-143		87		.	-10		.	

DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII

APRIL 1982

DATE Apr '82	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} (x10^6 K)
1	0519	043.	491.	24.5	0.491
2	1729		646.	16.6	.098
3	0728		513.	7.	.157
4	0449		468.	10.	.182
5	0325		437.	7.2	.085
6	0644		366.	17.2	.057
7	1600		451.	17.8	.333
8	0501		487.	8.9	.254
9	0418		525.	14.8	.227
10	0502		573.	7.8	.304
11	0558		571.	9.2	.345
12	0343		439.	10.2	.087
13	0509		342.	25.9	.073
14	0642		382.	32.4	.081
15	0528	051.	474.	21.7	.125
16	0432		458.	13.4	.2
17	0343		445.	18.6	.337
18	0417		425.	12.6	.07
19	0524		342.	16.1	.043
20	0359		347.	18.7	.053
21	0417		416.	17.6	.209
22	0317		465.	12.5	.35
23	0248		472.	11.2	.239
24	0708		715.	7.3	.227
25	0713		589.	10.1	.309
26	0314		666.	8.5	.393
27	0439		660.	5.9	.299
28	0433		461.	11.6	.091
29	0338		355.	21.4	.057
30	0520		281.	41.9	.118

DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

APRIL 1982

DATE	ONSET TIME	DIR	COMMENTS
04/01			Field intermittently unsettled, active after 1900 UT.
	1000		Weak SS.
	1306	SSC	
04/02	0320	East	
	0635	East	
	1220	West	Initial SS onset, strong injection at 1255 UT, with recovery near 1500 UT.
	1615		
04/03			Field at magstorm condition 0400-1800 UT.
04/04			Field intermittently active.
	0505	East	
	0845	West	
	1235	West	Initial SS onset, numerous minor injections.
04/05	0350	East	Several injections with recovery near 0530 UT.
	0740	= center	
	0950	West	Moderate SS at College where initial onset began.
	1920		Localized SS Cape Parry to Sachs Harbour.
	2210		Localized SS Cape Parry to Sachs Harbour.
04/06	0720	West	
	1105		Localized SS College to Ft. Yukon.
	1240		SS along oval stations only.
	1625		
04/07			Field slightly unsettled.
	0925		Weak SS.
04/08			Field unsettled after 0500 UT.
	0850		Localized SS College to Ft. Yukon.
04/09			Field intermittently unsettled with no distinctive SS activity.
04/10	0920	East	Magstorm conditions balance of day following this initial SS.
04/11	0515		Moderate to strong bay D-component at Boulder Tucson only.
	0710		Moderate bay D-component at Boulder Tucson only.
	0835		Localized SS College.
	0910	= center	
	1410	West	
04/12			Field intermittently unsettled.
	1205	West	Moderate SS along oval stations.
04/13			Field intermittently unsettled.
	0215	East	Boulder in partial ring current sector.
04/14			Field intermittently unsettled with no distinctive SS activity.
04/15	0830	West	Weak SS
	1310	West	
04/16			Field intermittently unsettled until SSC.
	1702	SSC	Field unsettled balance of day.
04/17			Field active 0600-1700 UT.
	0705	East	
	0810		Localized SS Inuvik to Norman Wells, delayed response at College.
	0915		Localized SS vicinity of College.
	1035	West	
	1400		
04/18			Field unsettled after 1200 UT.
	1235		Slow expansion northward and westward from College.
04/19			Field unsettled after 1400 UT.
	1440		SS along oval stations only.
04/20			Field moderately unsettled.
	0735	East	
04/21			Field active 0600-1930 UT.
	0010		Boulder in partial ring current sector.
	0610	= center	
	1030	West	
04/22			Field unsettled through 0900 UT.
	0325	East	
04/23			Field intermittently unsettled.
	1015		Weak SS
	1105		Localized SS vicinity College.
	1130	West	
04/24			Field intermittently unsettled.
	2016	SSC	Magstorm follows.
04/25			Magstorm conditions through 1500 UT.
04/26			Field intermittently unsettled.
	0800		Slow onset, several injections with recovery near 1100 UT.
	1130		Weak SS
04/27			Field unsettled after 0500 UT.
	0540	East	
	1505	West	Initial onset, moderate injection into existing SS at 1600 UT, with final recovery near 1820 UT.
04/28			Field intermittently active.
	0120	East	Boulder in partial ring current sector.
	0345	East	
	0715	East	
	1155		Weak SS vicinity College.
	1245		Weak SS vicinity Lynn Lake.
	1330		Weak SS College to Ft. Yukon.
04/29			Field active.
	0345	East	
	0720	East	
	0855	West	
	1755	West	
04/30			Field active.
	0135	East	
	0655	West	
	1020	West	
	1415		Localized SS College to Ft. Yukon.
	1615	West	

SGD 453 Part I (Prompt)

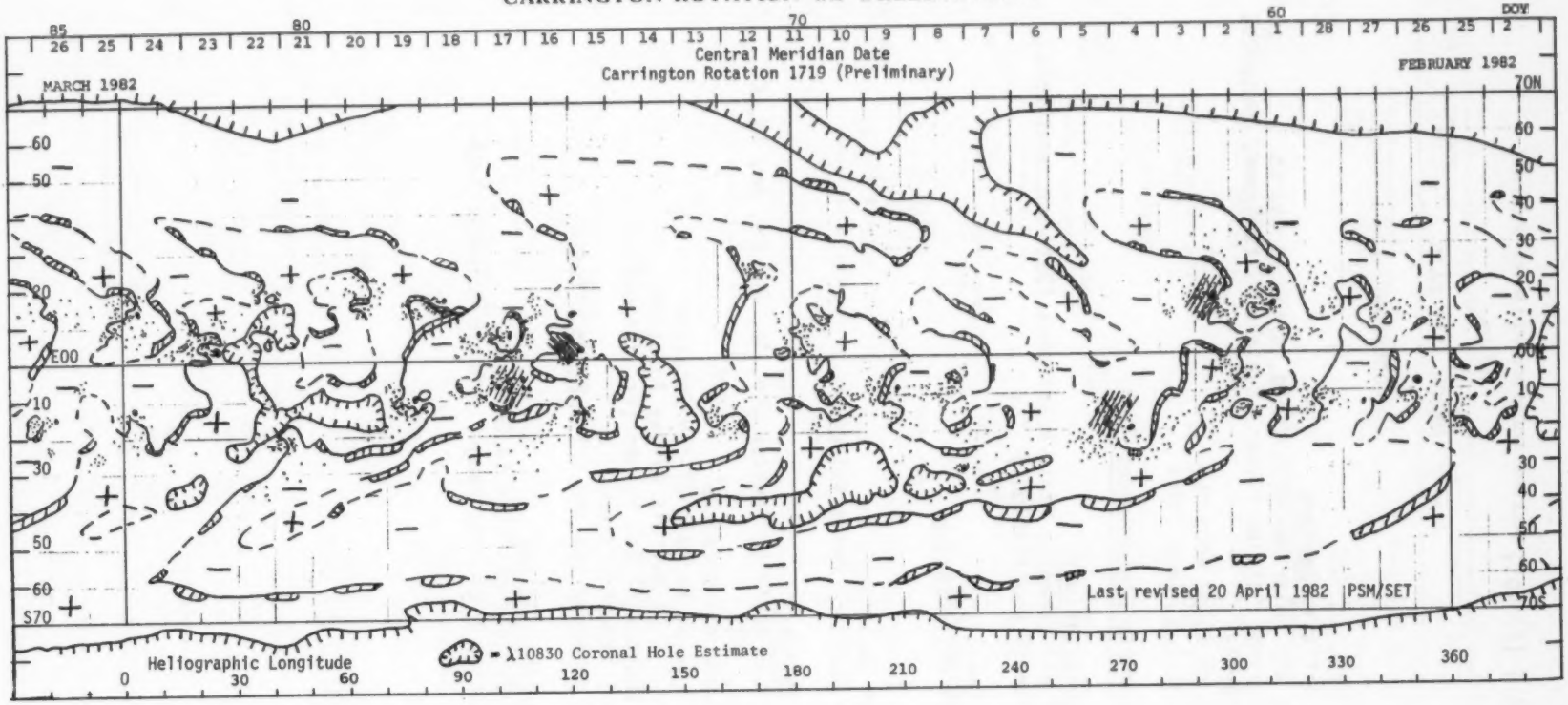
MARCH 1982 DATA

Contents

	Page
Daily Solar Activity Centers	
H-alpha and Solar Magnetic Field, Synoptic Charts	36-38
Magnetograms, Calcium Plages, H-alpha Filtergrams, Sunspots, and Corona	40-101
Regions of Solar Activity	102-113
Daily Calcium Plage Index	113
Sudden Ionospheric Disturbances	114-117
Spacecraft Observations	
Pioneer XII Magnetic Field Magnitudes (Data not available at time of publication.)	
Solar Radio Emission	
Spectral Observations	118-131
Cosmic Rays	
Chart of Variations	132-134
Neutron Monitors Daily Values	135
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)	136
Daily Average Indices Ap	137
Chart of Kp by Bartels 27-day Rotation	138
Chart of Dst by Bartels 27-day Rotation	139
Hourly Equatorial Dst Values (Provisional)	140
Principal Magnetic Storms	141
Sudden Commencements and Solar Flare Effects	142
Radio Propagation Indices	
Quality Indices on Paths to Germany	143
Transmission Frequency Ranges - North Atlantic Path	144-145

Hα SYNOPTIC CHART

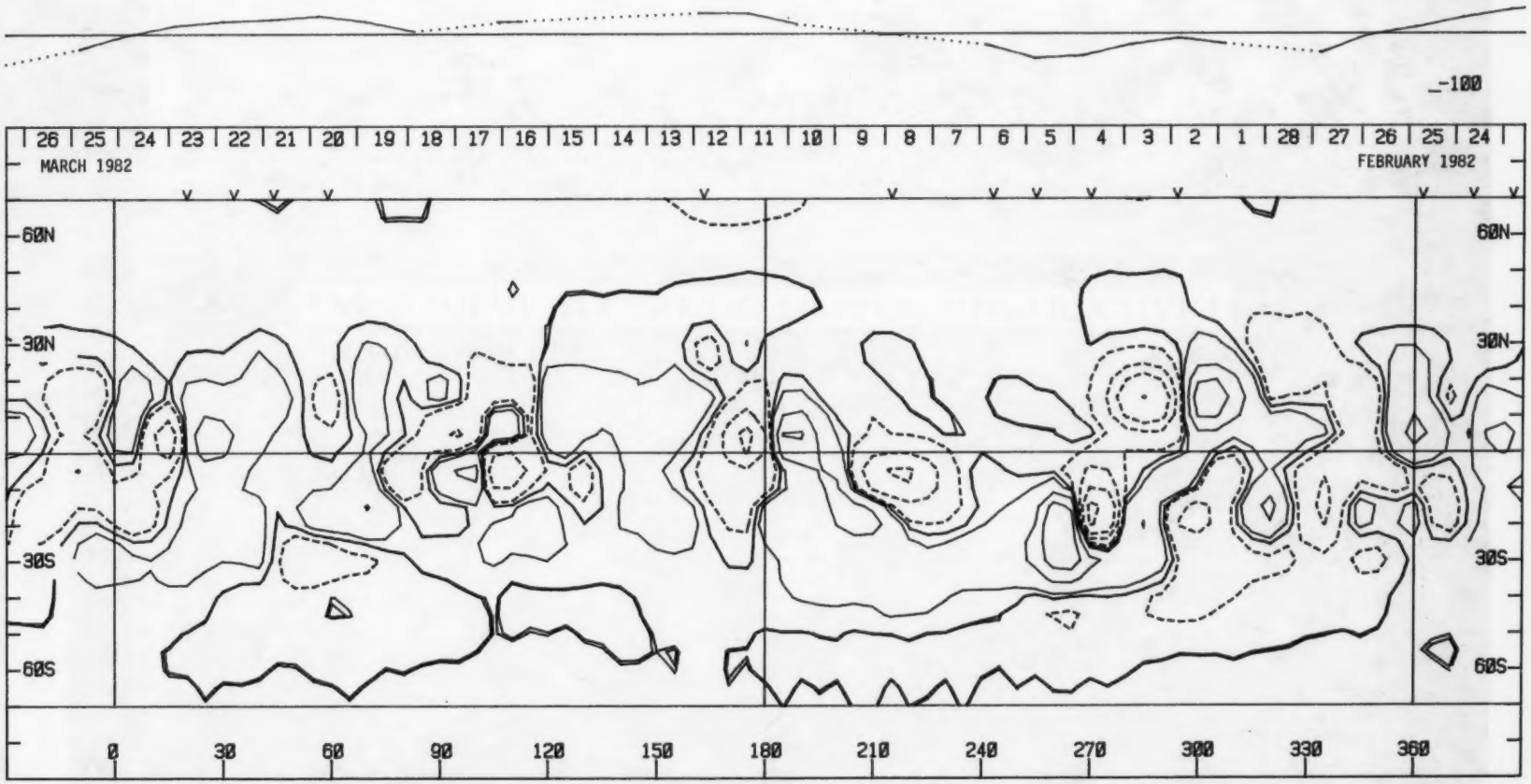
CARRINGTON ROTATION 1719 (PRELIMINARY)



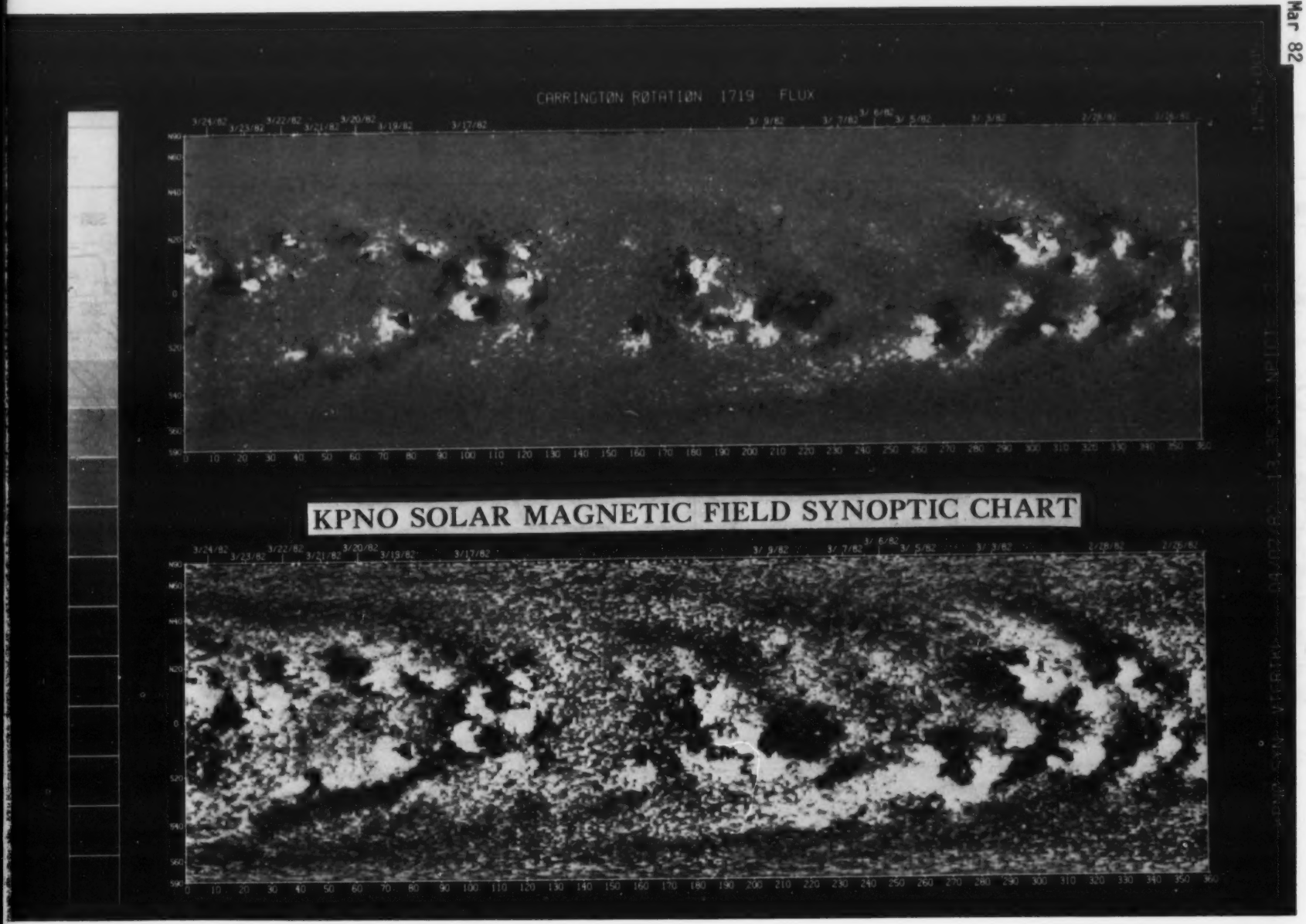
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1719

Stanford Solar Observatory

0,±100,200,500... μT



37
Mar 82


CARRINGTON ROTATION 1719 FLUX
3/24/82
3/23/82
3/22/82
3/21/82
3/20/82
3/19/82
3/17/82
3/ 9/82
3/ 7/82
3/ 6/82
3/ 5/82
3/ 3/82
2/28/82
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

MARCH 1, 1982 (P=-21.49, B_o=-7.22, L_o=319.98)

SACRAMENTO PEAK Np CORONA
5303 Å

NO DATA MARCH 1, 2, 3, 8, 10, 11, 12, 13, 14, 15, 17, 18, 22, 23, 25, 26, 31

E W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1553 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA MARCH 1, 2, 5, 8, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 24, 25, 26, 27, 28, 29, 30 W

Levels
± 5
± 10
± 20
± 40
± 80

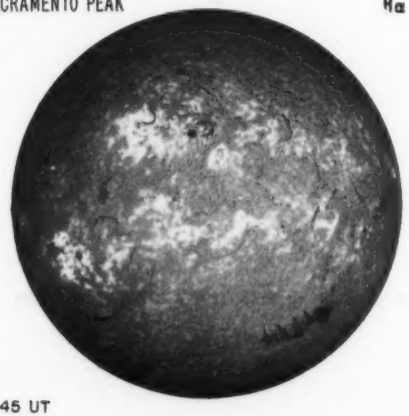
Sp

01

SACRAMENTO PEAK

Np

Hα



E W

1445 UT

Sp

BOULDER

Np

NO DATA

E W

Sp

SUNSPOTS

BIG BEAR

Np

NO DATA MARCH 1, 2, 8, 11, 12, 13, 14, 15, 18, 20, 26, 27

E W

Sp

ACTIVE REGIONS

BOULDER
PROMINENCES

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E

NO DATA MARCH 1, 2, 7, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 24, 25, 26, 27, 28, 29, 30, 31

W

Levels
0 μT
± 50
± 100
± 200

Sp

41
Mar 82

MARCH 2, 1982 (P=-21.74, B_o=-7.23, L_o=306.80)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA MARCH 2, 3, 8, 11, 12, 13, 14, 15, 18, 26, 27 W

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

02

SACRAMENTO PEAK Hα

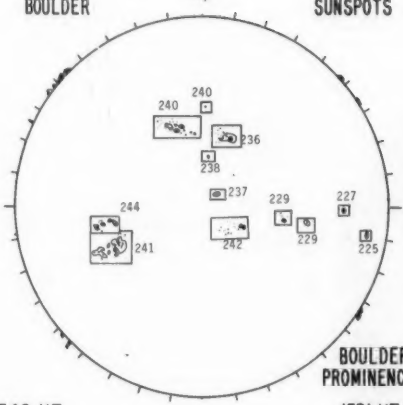
Np

E NO DATA W

Sp

BOULDER SUNSPOTS

Np



E W E

BOULDER PROMINENCES

1540 UT 1521 UT

Sp

BIG BEAR ACTIVE REGIONS

Np

NO DATA

W

Sp

STANFORD

Np

E NO DATA W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

••

43

Mar 82

MARCH 3, 1982 (P= -21.98, B_o =-7.24, L_o = 293.63)

SACRAMENTO PEAK Np CORONA 5303 Å

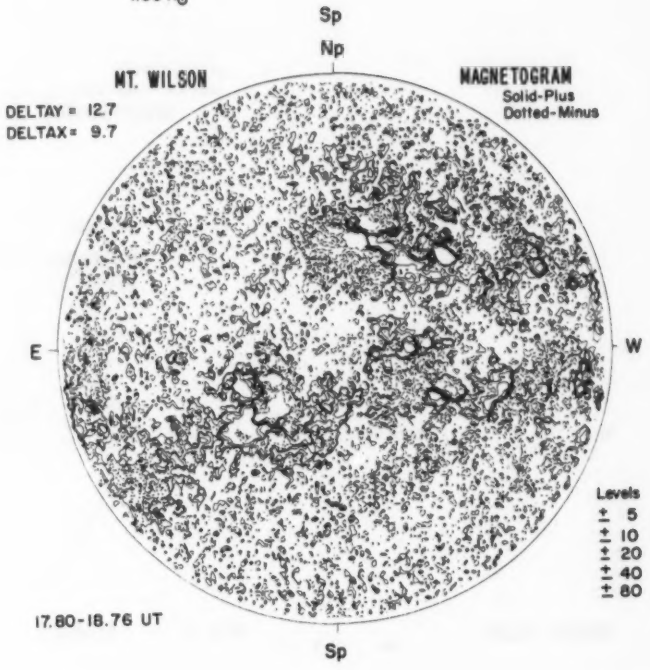
E NO DATA W

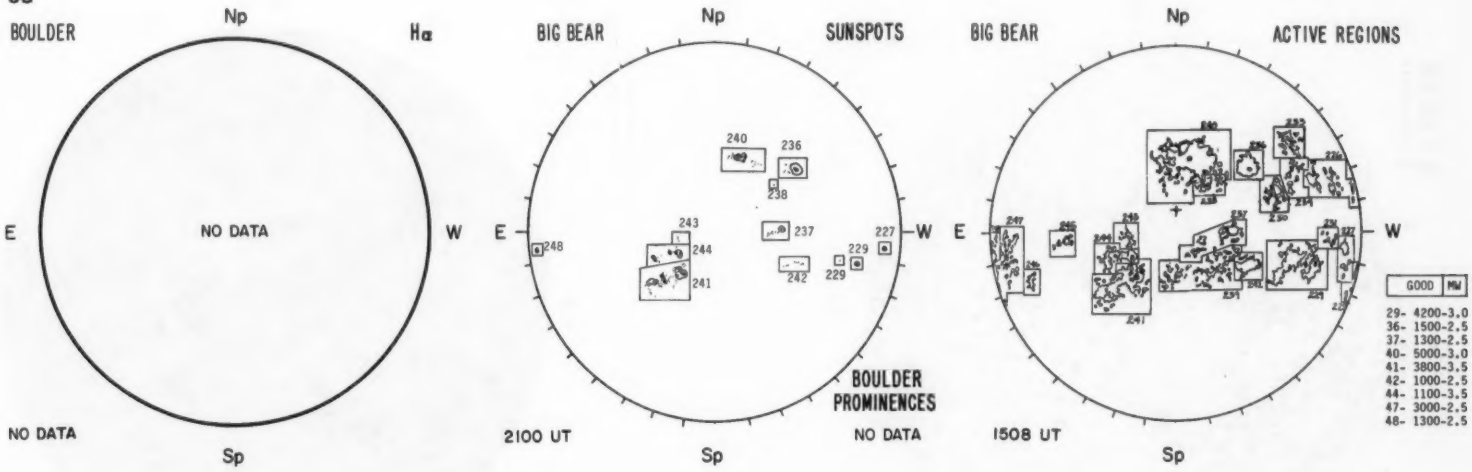
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

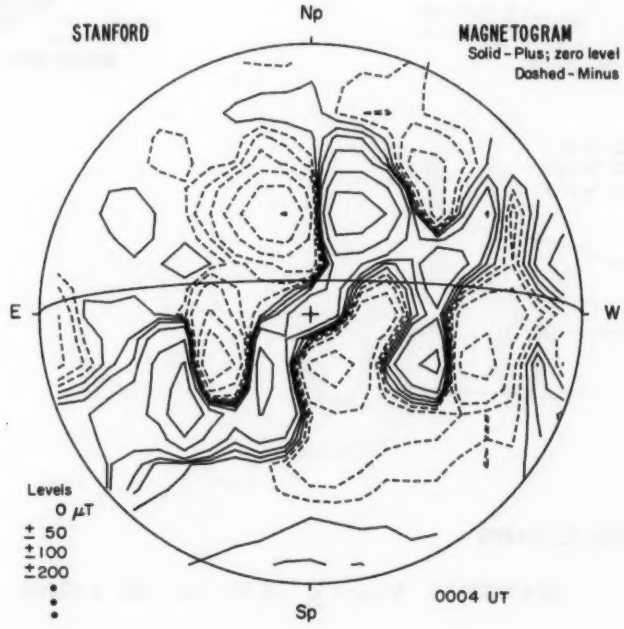
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

E NO DATA W

Sp

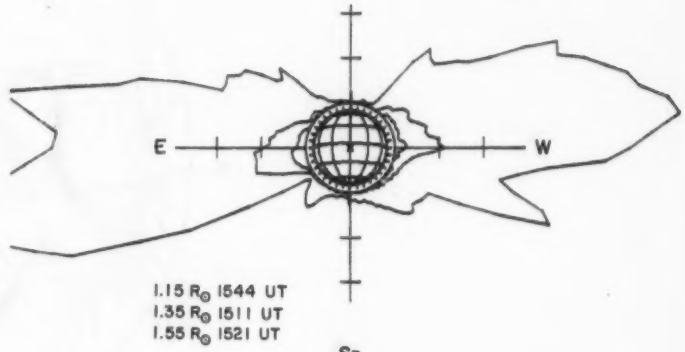


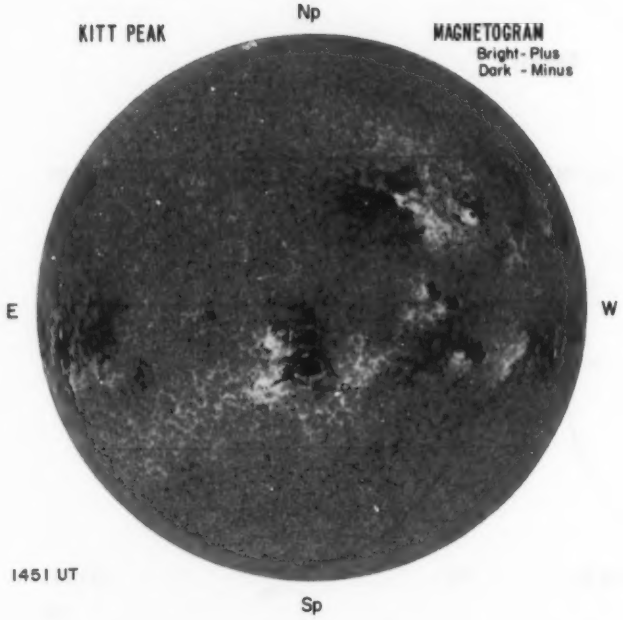

BOULDER
Np
Hα
E
NO DATA
W
NO DATA
Sp
BIG BEAR
Np
SUNSPOTS
240
236
238
243
237
227
E
248
244
229
229
241
242
W
BOULDER
PROMINENCES
2100 UT
NO DATA
Sp
BIG BEAR
Np
ACTIVE REGIONS
E
W
1508 UT
Sp
GOOD
29- 4200-3.0
36- 1500-2.5
37- 1300-2.5
40- 5000-3.0
41- 3800-3.5
42- 1000-2.5
44- 1100-3.5
47- 3000-2.5
48- 1300-2.5

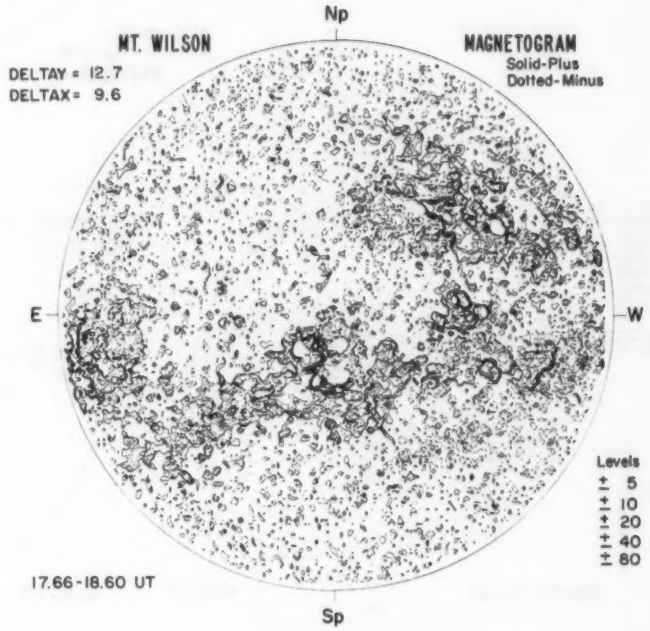

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
0004 UT

MARCH 4, 1982 (P= -22.22, B_o= -7.24, L_o= 280.46)

SACRAMENTO PEAK







Sp

Sp

04

SACRAMENTO PEAK

Np

Hα

E

W

1437 UT

Sp

BIG BEAR

Np

SUNSPOTS

240

236

238

254

248

251

244

237

229

227

242

241

E

W

1725 UT

Sp

BOULDER PROMINENCES

1803 UT

BIG BEAR

Np

ACTIVE REGIONS

E

W

1451 UT

Sp

GOOD	MU/MM
29- 4300-3.0	
36- 1400-2.5	
37- 1300-2.5	
40- 5400-3.0	
41- 3800-3.5	
42- 1000-2.5	
44- 1800-3.5	
47- 5100-2.5	
48- 1700-2.5	

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

1832 UT

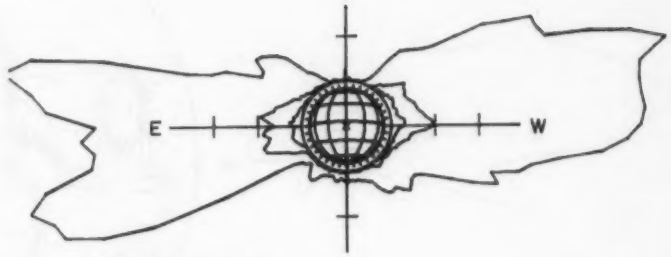
Sp

MARCH 5, 1982 (P= -22.45, B_o=-7.25, L_o= 267.28)

SACRAMENTO PEAK

Np

CORONA
5303 Å



1.15 $R_\odot$ 1553 UT
1.35 $R_\odot$ 1522 UT
1.55 $R_\odot$ 1533 UT

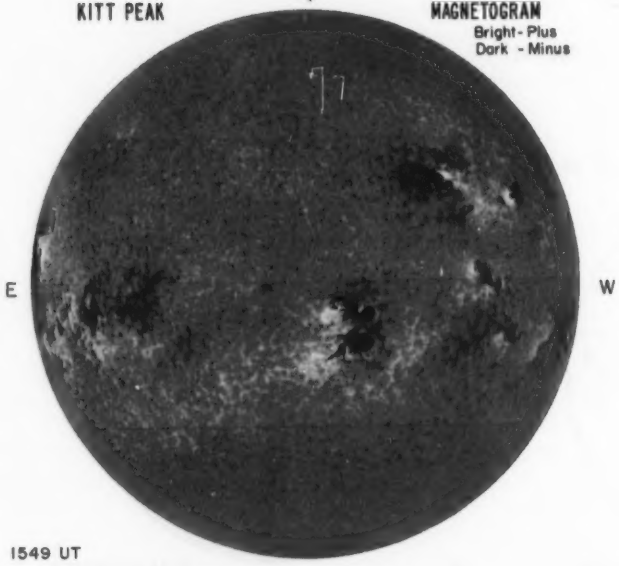
Sp

Np

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1549 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

05

SACRAMENTO PEAK

Np

Hα

E

W

1443 UT

Sp

BIG BEAR

Np

SUNSPOTS

240

236

254

248

251

244

237

241

242

229

E

W

BOULDER PROMINENCES

NO DATA

1820 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS

240

236

238

247

246

245

243

237

E

W

FAIR	MM/MW
29-	3700-2.5
36-	1400-2.5
37-	2000-3.0
38-	0600-2.5
39-	1800-2.5
40-	4700-3.5
41-	3800-3.5
42-	1200-3.0
44-	2500-3.5
47-	4000-2.5
48-	3000-2.0
54-	4000-3.5

1549 UT

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

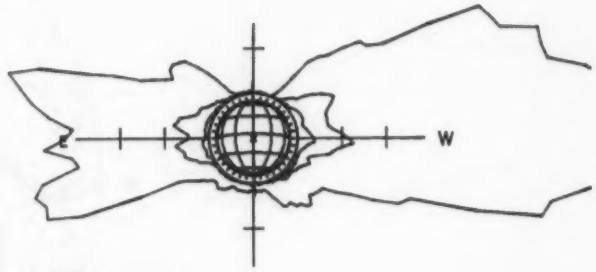
±200

2219 UT

Sp

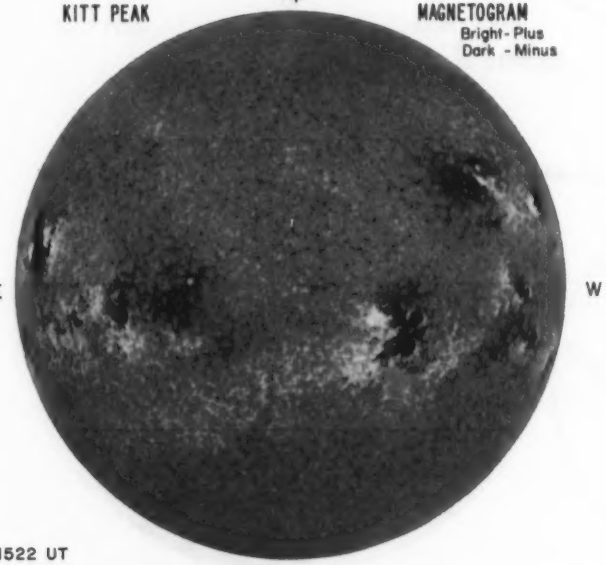
MARCH 6, 1982 (P= -22.68, B_o=-7.25, L_o=254.11)

SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1652 UT
1.35 $R_\odot$ 1629 UT
1.55 $R_\odot$ 1639 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

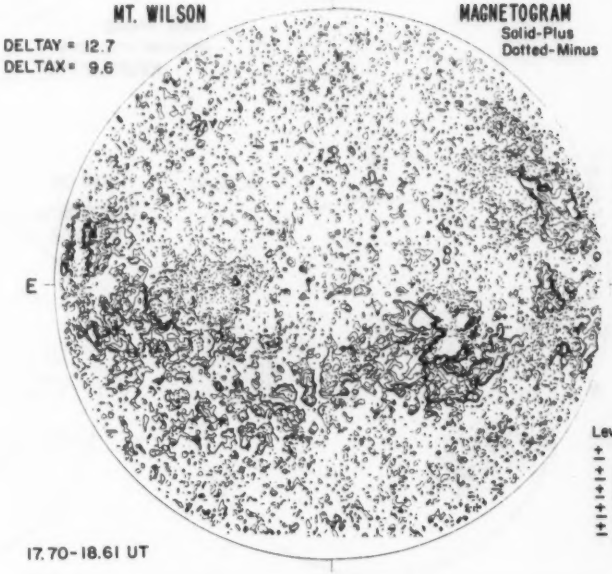


1522 UT

Sp

Sp
Np

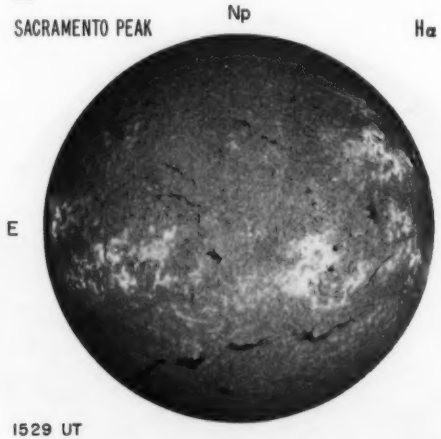
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.6

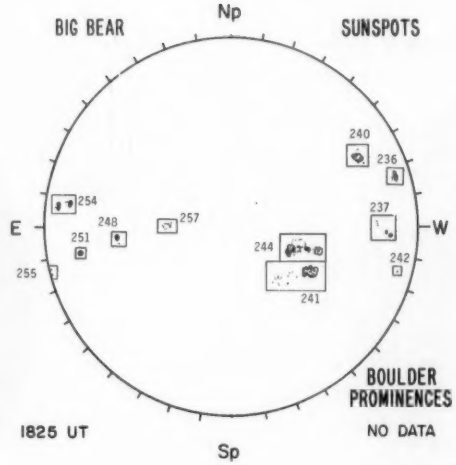


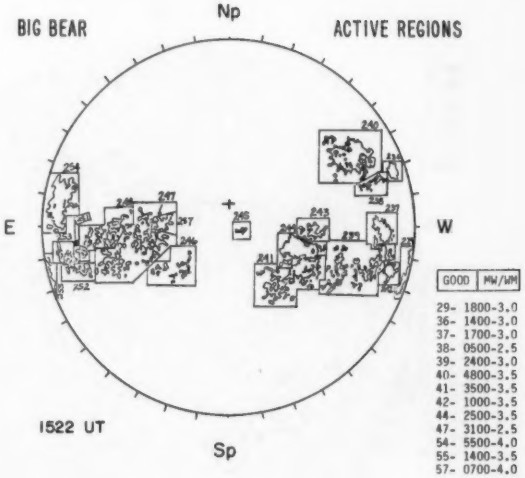
17.70-18.61 UT

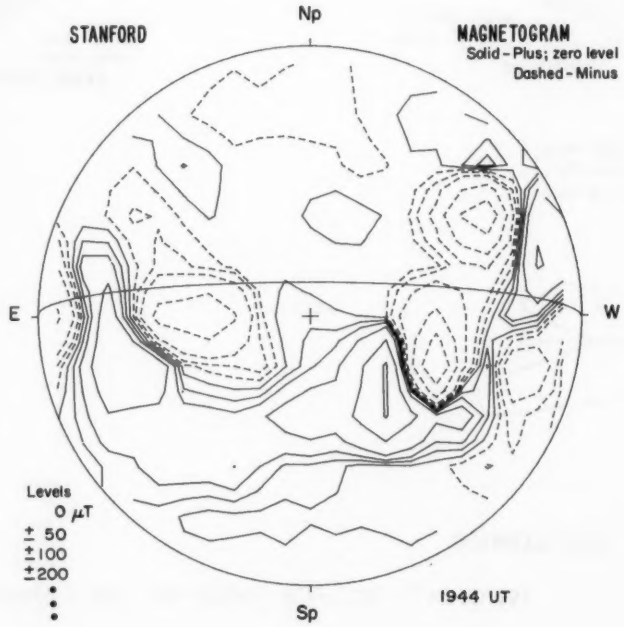
Sp

06


SACRAMENTO PEAK
Np
Hα
E
W
1529 UT
Sp

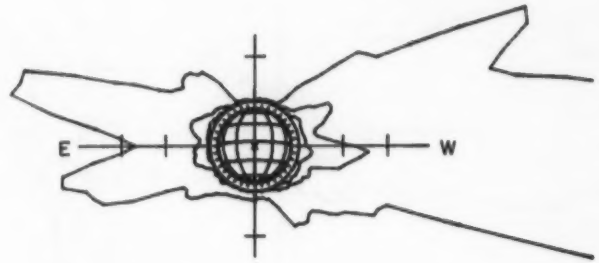

BIG BEAR
Np
SUNSPOTS
240
236
254
248
257
237
251
244
242
255
241
E
W
BOULDER
PROMINENCES
NO DATA
1825 UT
Sp


BIG BEAR
Np
ACTIVE REGIONS
E
W
GOOD | MW/WM
29- 1800-3.0
36- 1400-3.0
37- 1700-3.0
38- 0500-2.5
39- 2400-3.0
40- 4800-3.5
41- 3500-3.5
42- 1000-3.5
44- 2500-3.5
47- 3100-2.5
54- 5500-4.0
55- 1400-3.5
57- 0700-4.0
1522 UT
Sp


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
1944 UT
Sp

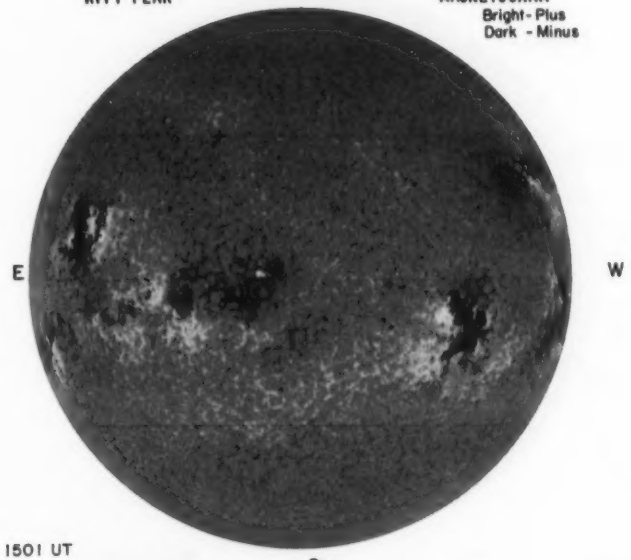
MARCH 7, 1982 (P=-22.90, B_o=-7.25, L_o=240.93)

SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1611 UT
1.35 $R_\odot$ 1549 UT
1.55 $R_\odot$ 1559 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



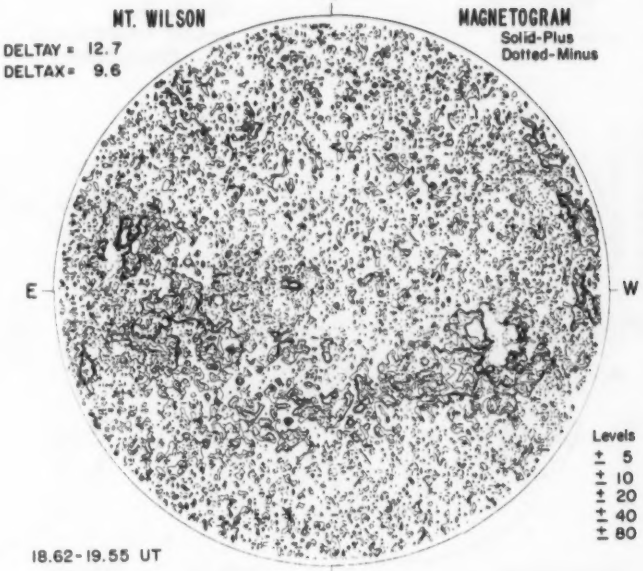
1501 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



18.62-19.55 UT

Sp

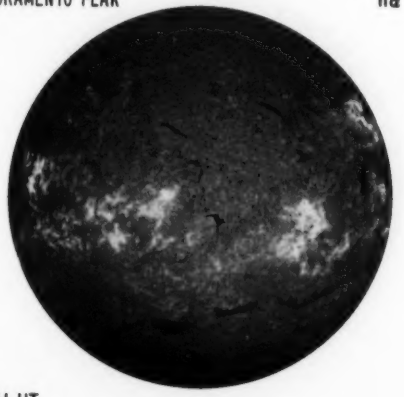
Sp

07

Np

SACRAMENTO PEAK

Hα



E

W

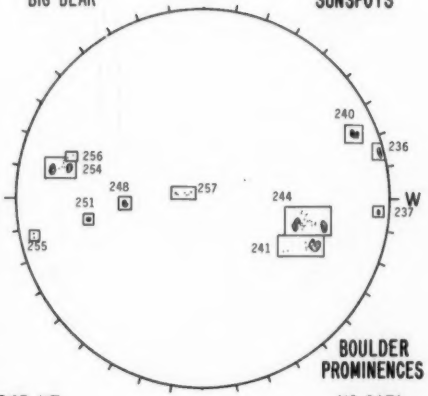
1531 UT

Sp

Np

BIG BEAR

SUNSPOTS



E

W

1645 UT

Sp

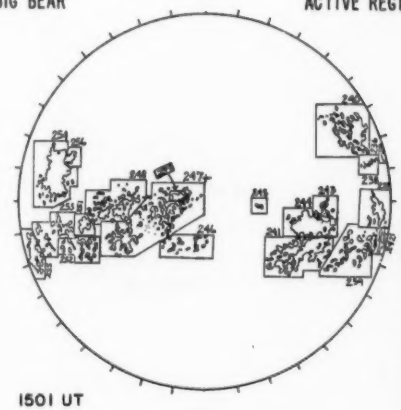
BOULDER PROMINENCES

NO DATA

Np

BIG BEAR

ACTIVE REGIONS



E

W

1501 UT

Sp

GOOD	MH/WH
36-	0700-3.0
37-	1800-3.0
40-	4700-3.5
41-	3700-3.0
42-	0500-3.5
44-	3000-3.0
47-	3000-2.5
48-	2200-2.5
54-	4800-3.5
55-	2500-3.5
56-	0400-3.0
57-	0400-3.5

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

Sp

MARCH 8, 1982 (P=-23.11, B_o=-7.25, L_o=227.76)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM Bright-Plus Dark-Minus

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX=

E NO DATA W

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± ± 40
± ± ± 80

Sp

Sp

Sp

Sp

08

SACRAMENTO PEAK

Np

Hα

E

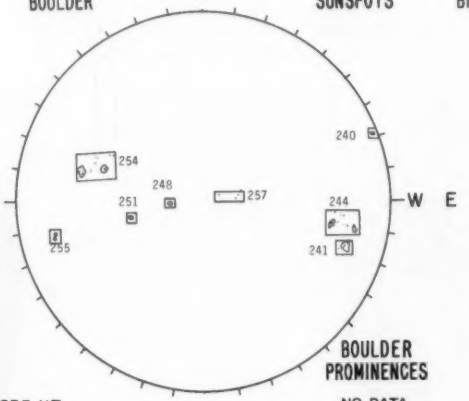
W

1911 UT

Sp

BOULDER

Np



E

W

1835 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

BIG BEAR

Np

NO DATA

Sp

ACTIVE REGIONS

E

W

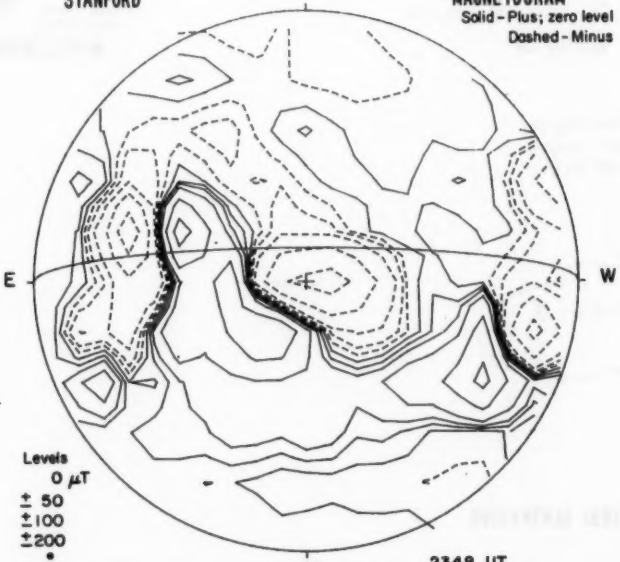
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

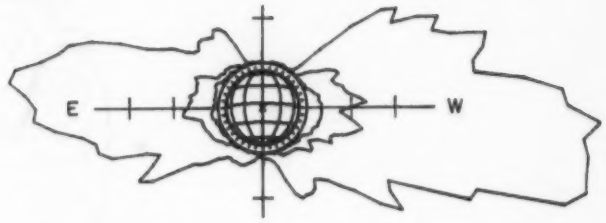
±200

2348 UT

Sp

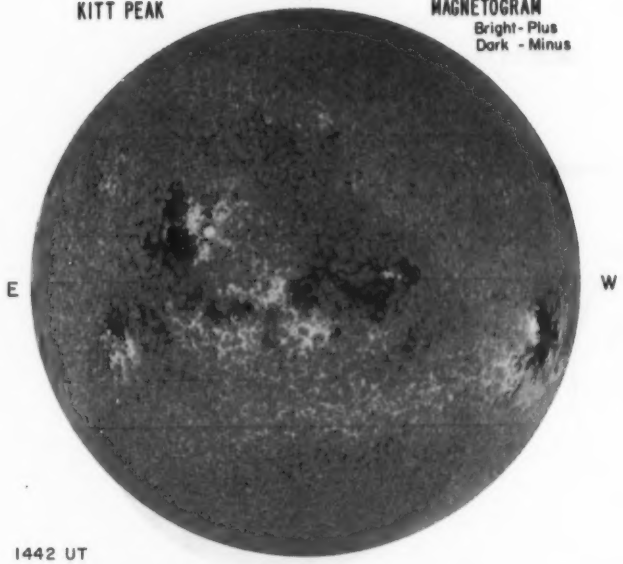
MARCH 9, 1982 (P=-23.32, B_o=-7.24, L_o=214.58)

SACRAMENTO PEAK Np CORONA
5303 Å



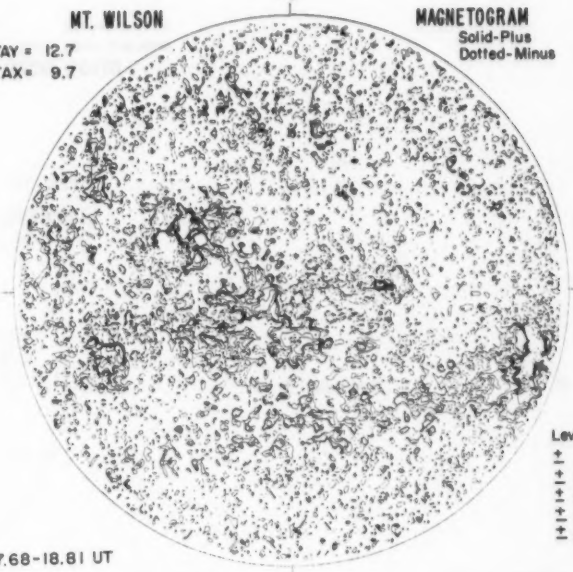
1.15$R_\odot$ 1637 UT
1.35$R_\odot$ 1606 UT
1.55$R_\odot$ 1616 UT

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



1442 UT

Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.7



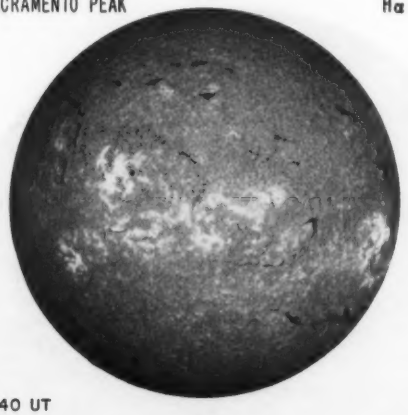
17.68-18.81 UT

Sp

Sp

09

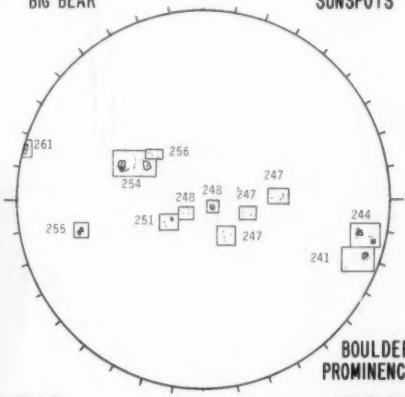
SACRAMENTO PEAK Np Hα



E W

1440 UT Sp

BIG BEAR Np SUNSPOTS



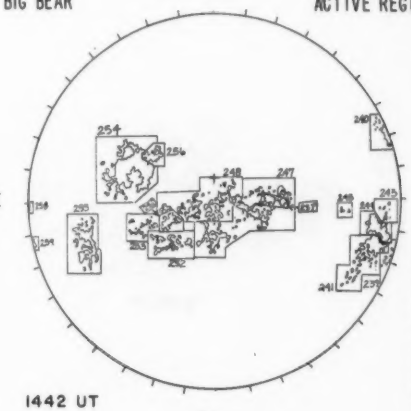
E W

1750 UT Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS



E W

1442 UT Sp

GOOD	MH/WM
40-	2000-3.5
41-	3500-3.0
44-	2800-3.5
47-	3400-2.5
48-	2500-2.5
54-	4700-3.5
55-	2100-3.0
56-	0600-3.0
57-	0400-3.0

Np

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

± 100

± 200

Sp

57

Mar 82

MARCH 10, 1982 (P=-23.52, B_o=-7.24, L_o=201.40)

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1831 UT

Sp

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

Sp

Sp

10

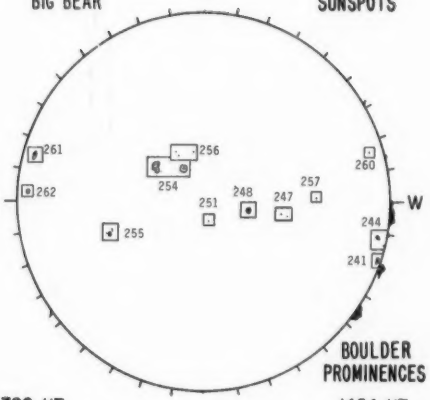
SACRAMENTO PEAK Np Hα

E W

1435 UT

Sp

BIG BEAR Np SUNSPOTS



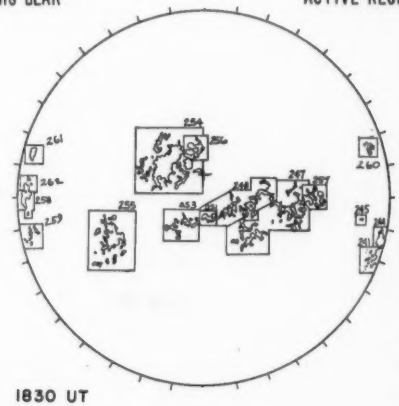
E W

BOULDER PROMINENCES

1700 UT 1454 UT

Sp

BIG BEAR Np ACTIVE REGIONS



E W

1830 UT

Sp

POOR	MW/WM
41-	1500-3.0
44-	1500-3.0
47-	2800-2.5
48-	2000-2.5
54-	5000-3.5
55-	2500-3.0
56-	0600-2.5
57-	0400-2.5
60-	0300-2.5
61-	0700-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

59
Mar 82

MARCH 11, 1982 (P= -23.71, B_o= -7.23, L_o= 188.22)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

NO DATA

W

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

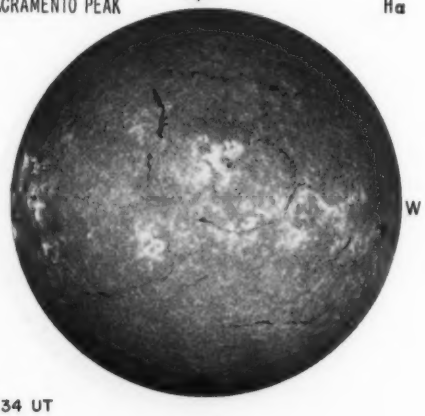
Sp

11

SACRAMENTO PEAK

Np

Hα



E

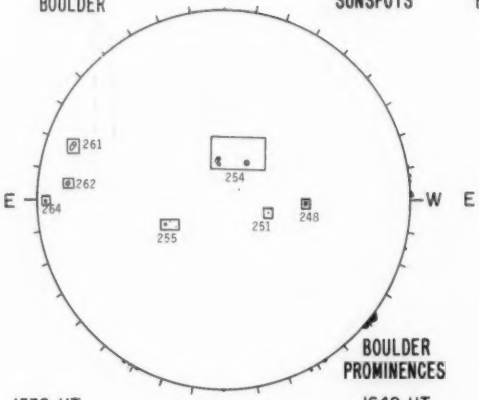
W

1434 UT

Sp

BOULDER

Np



E

W

E

BOULDER PROMINENCES

1530 UT

1649 UT

Sp

SUNSPOTS

BIG BEAR

Np

NO DATA

E

W

Sp

ACTIVE REGIONS

STANFORD

Np

NO DATA

E

W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

•

61

Mar 82

MARCH 12, 1982 (P=-23.90, B_o=-7.22, L_o=175.04)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

NO DATA

W

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

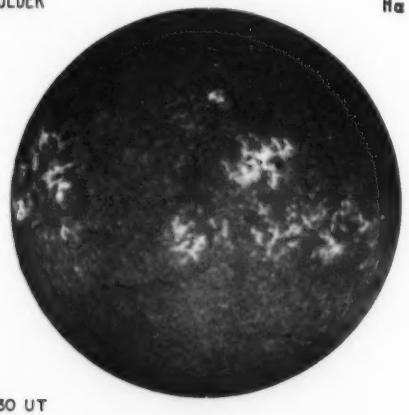
Sp

Sp

BOULDER

Np

Hα



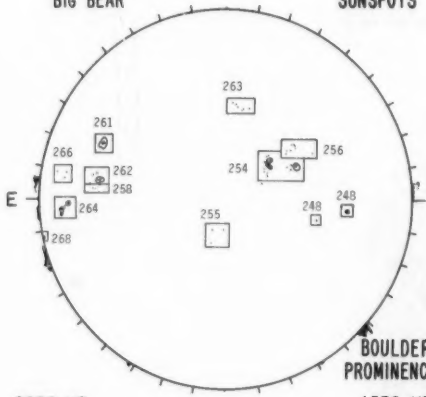
E W

1530 UT

Sp

BIG BEAR

Np



E W E

2020 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1530 UT

BIG BEAR

Np

NO DATA

E W

Sp

ACTIVE REGIONS

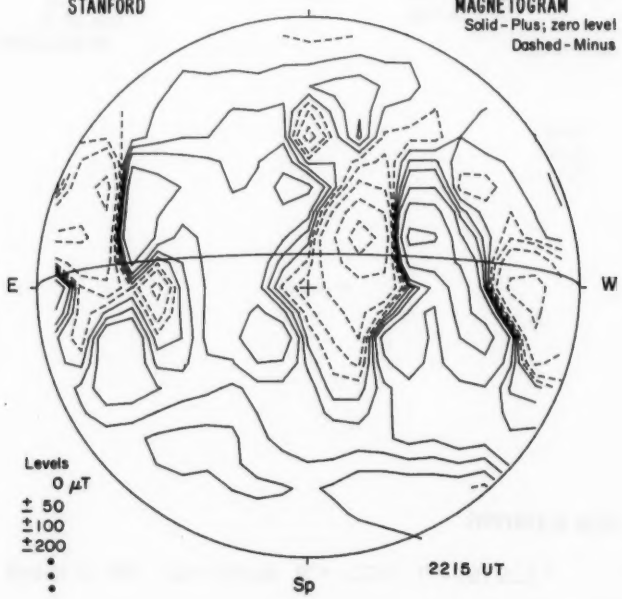
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Sp

2215 UT

MARCH 13, 1982 (P= -24.08, B_o = -7.20, L_o = 161.87).

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

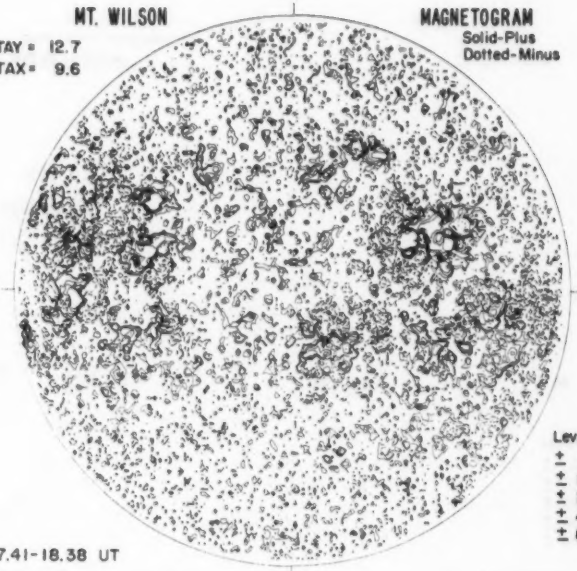
E NO DATA W

Sp

Sp

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



17.41-18.38 UT

Sp

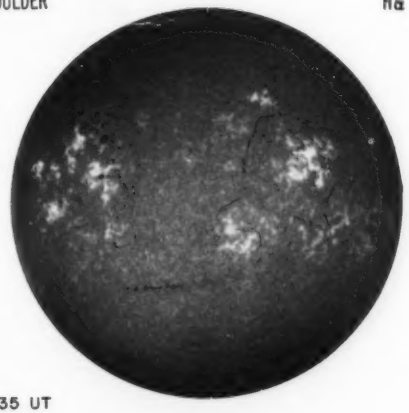
Sp

13

BOULDER

Np

Hα



E

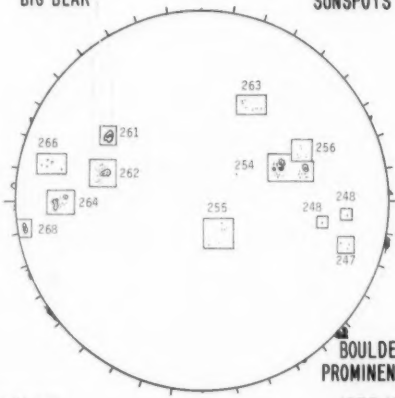
W

1635 UT

Sp

BIG BEAR

Np



E

W

1620 UT

Sp

SUNSPOTS

BIG BEAR

BOULDER
PROMINENCES

1635 UT

Sp

Np

NO DATA

E

W

ACTIVE REGIONS

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

MARCH 14, 1982 (P=-24.25, B_o=-7.19, L_o=148.69)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM Bright-Plus Dark-Minus

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

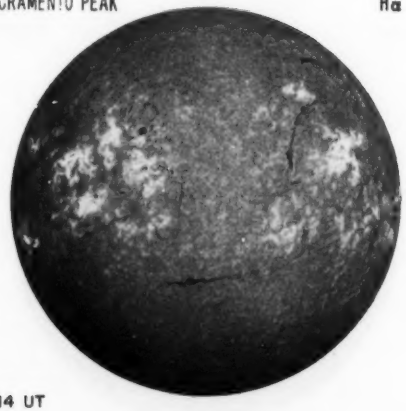
Sp Sp

Sp

Sp

14

SACRAMENTO PEAK Np Hα

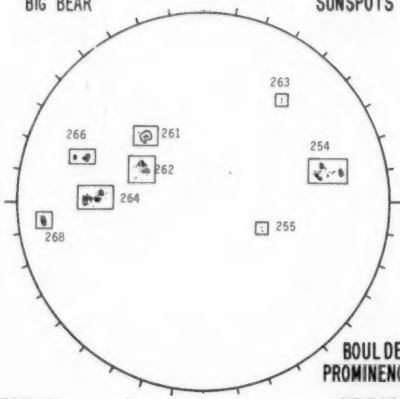


E W

1814 UT

Sp

BIG BEAR Np SUNSPOTS



E W

1555 UT

Sp

BIG BEAR Np ACTIVE REGIONS

NO DATA

E W

Sp

BOULDER PROMINENCES

NO DATA

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

67

Mar 82

MARCH 15, 1982 (P=-24.41, B_o=-7.17, L_o=135.51)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

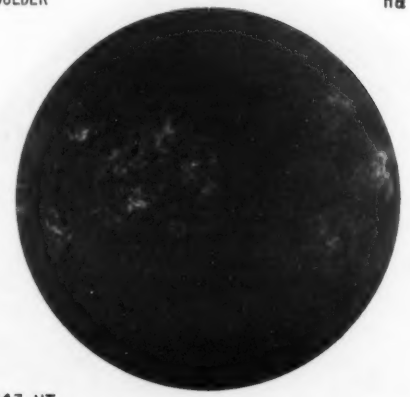
Sp Sp

15

BOULDER

Np

Hα



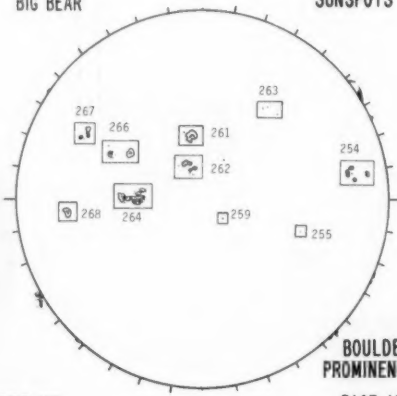
E W

2143 UT

Sp

BIG BEAR

Np



E W E

1925 UT

Sp

SUNSPOTS

BIG BEAR

BOULDER PROMINENCES

2143 UT

Np

NO DATA

Sp

ACTIVE REGIONS

Np

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

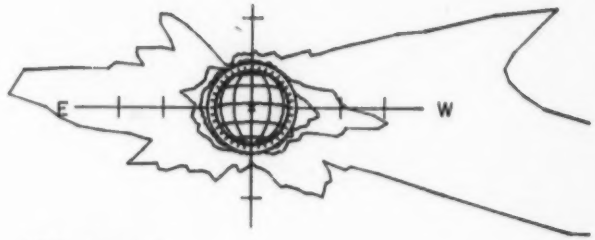
•

•

Sp

MARCH 16, 1982 (P=-24.57, B_o=-7.15, L_o=122.33)

SACRAMENTO PEAK Np CORONA
5303 Å

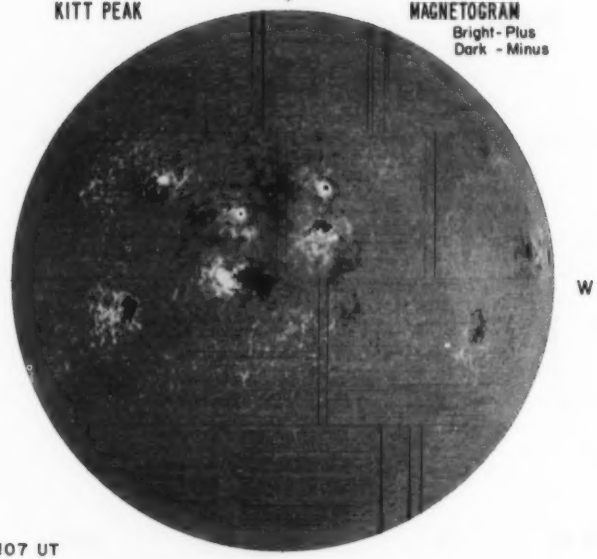


1.15 $R_\odot$ 2004 UT
1.35 $R_\odot$ 1941 UT
1.55 $R_\odot$ 1951 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



2107 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

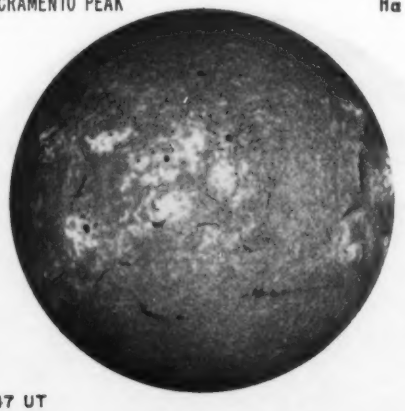
Sp

16

SACRAMENTO PEAK

Np

Hα



E W

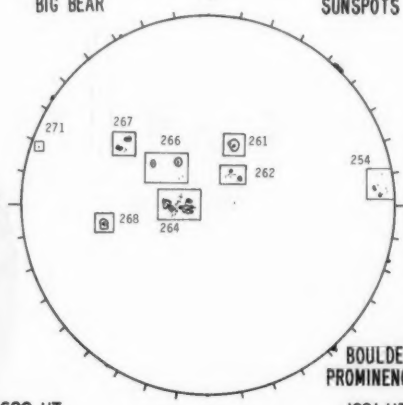
1747 UT

Sp

BIG BEAR

Np

SUNSPOTS



E W

1600 UT

Sp

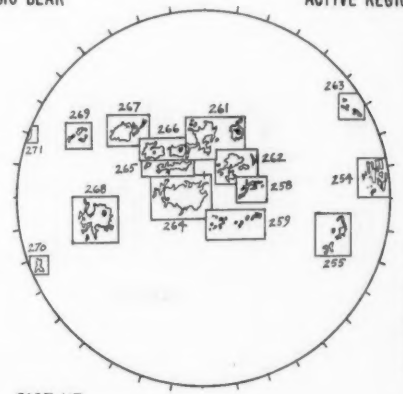
BOULDER PROMINENCES

1621 UT

BIG BEAR

Np

ACTIVE REGIONS



E W

2107 UT

Sp

V POOR	WM

54- 3500-2.5
61- 2500-3.0
62- 1200-2.5
64- 3700-3.5
66- 1500-2.5
67- 1400-3.0
68- 3500-3.0
70- 0700-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

71

Mar 82

MARCH 17, 1982 (P= -24.73, B_o= -7.13, L_o= 109.14)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1510 UT

Sp

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

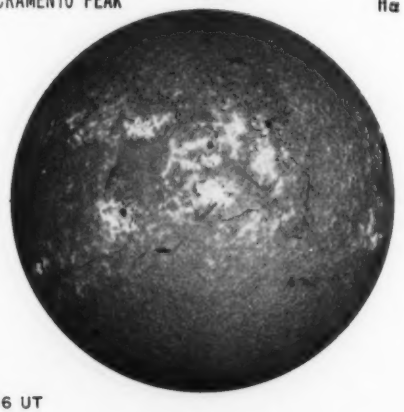
Sp

17

SACRAMENTO PEAK

Np

Hα



E W

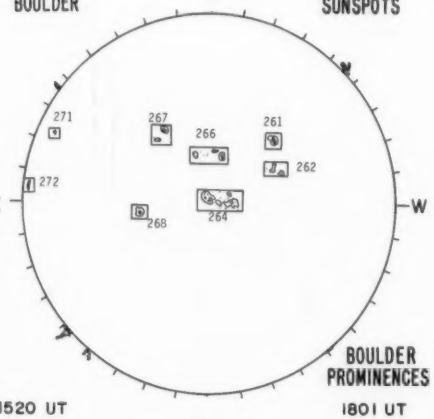
1546 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1520 UT

Sp

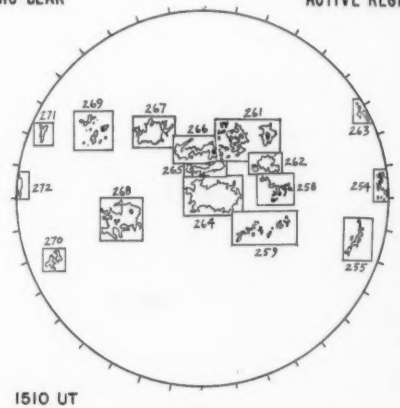
BOULDER PROMINENCES

1801 UT

BIG BEAR

Np

ACTIVE REGIONS



E W

1510 UT

Sp

FAIR	WM

54- 2800-2.5
61- 2500-3.0
62- 1000-2.5
64- 3500-3.5
66- 1300-2.5
67- 2000-3.5
68- 3400-3.5
70- 0700-2.5
72- 1500-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

73

Mar 82

MARCH 18, 1982 (P=-24.87, B_o=-7.10, L_o= 95.96)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

Sp

Np

KITT PEAK MAGNETOGRAM Bright - Plus Dark - Minus

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX =

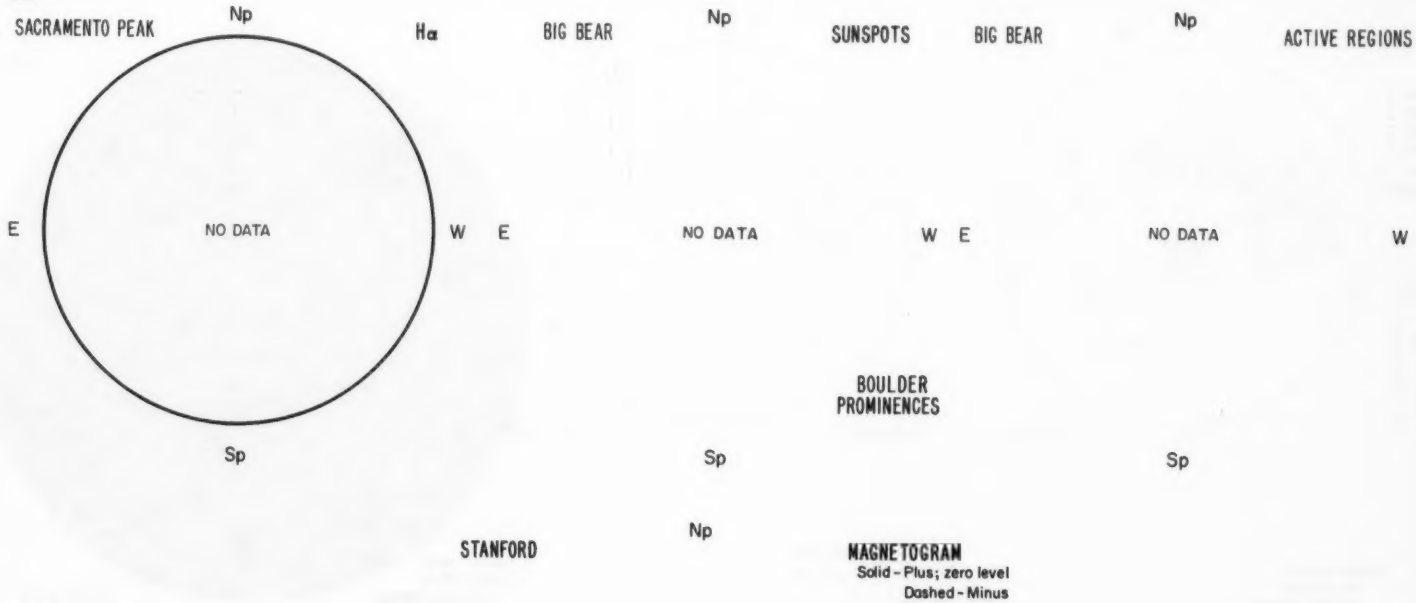
E NO DATA W

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

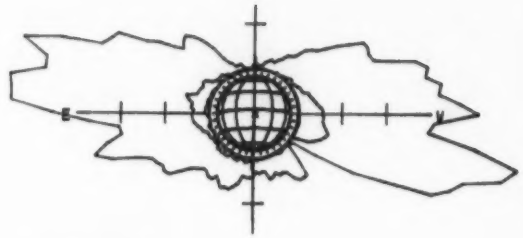
Sp

Sp


SACRAMENTO PEAK
Np
Hα
E
NO DATA
W
Sp
BIG BEAR
Np
E
NO DATA
W
Sp
SUNSPOTS
BIG BEAR
Np
W
E
NO DATA
Sp
ACTIVE REGIONS
NO DATA
W
Sp
BOULDER
PROMINENCES
STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
NO DATA
W
Levels
0 μT
± 50
±100
±200
Sp

MARCH 19, 1982 (P=-25.01, B_o=-7.08, L_o=82.78)

SACRAMENTO PEAK Np CORONA
5303 Å

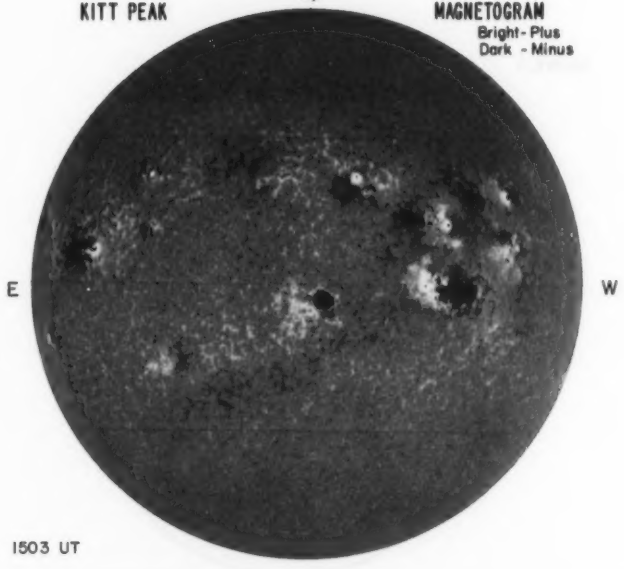


1.15 $R_\odot$ 2153 UT
1.35 $R_\odot$ 2204 UT
1.55 $R_\odot$ 2213 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1503 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

NO DATA

E W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

SACRAMENTO PEAK

Np

Hα

E

W

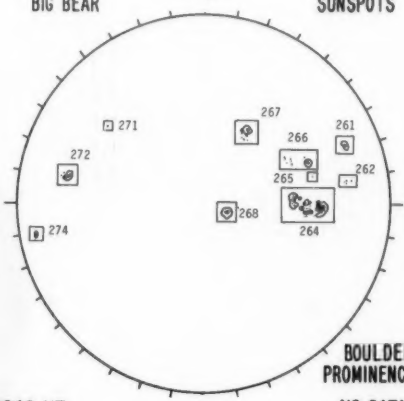
1824 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

2040 UT

Sp

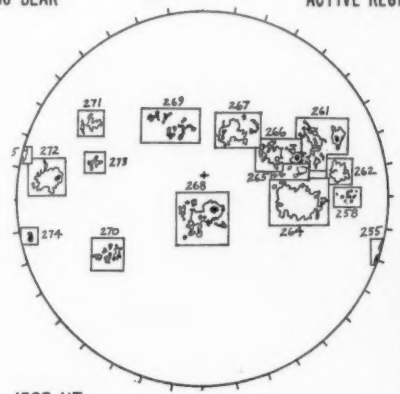
BOULDER PROMINENCES

NO DATA

BIG BEAR

Np

ACTIVE REGIONS



E

W

1503 UT

Sp

GOOD | WM

61- 2500-3.0
62- 1800-3.0
64- 4500-3.5
66- 0013-2.5
67- 2000-2.5
68- 2200-2.5
71- 0700-2.5
72- 3000-3.0
75- 0800-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

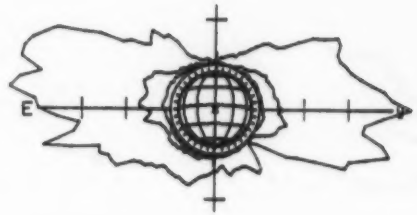
Sp

77

Mar 82

MARCH 20, 1982 (P=-25.14, B_o=-7.05, L_o=69.60)

SACRAMENTO PEAK Np CORONA
5303 Å

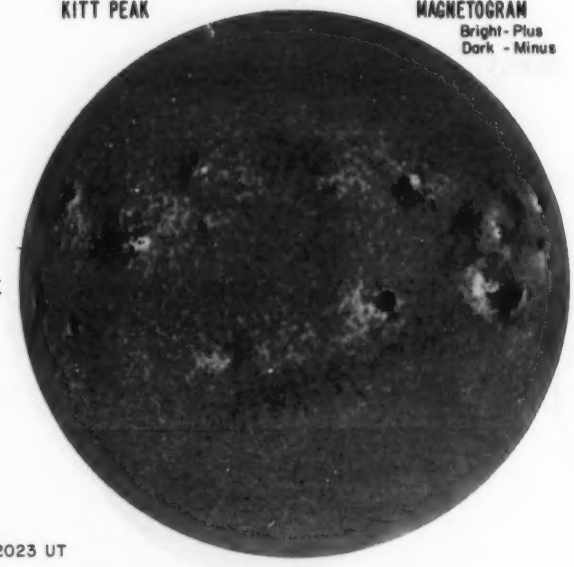


1.15 $R_\odot$ 1823 UT
1.35 $R_\odot$ 1834 UT
1.55 $R_\odot$ 1843 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

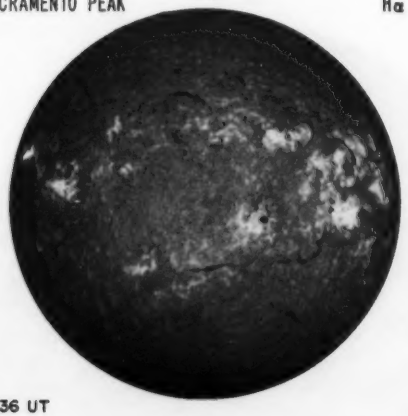
DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

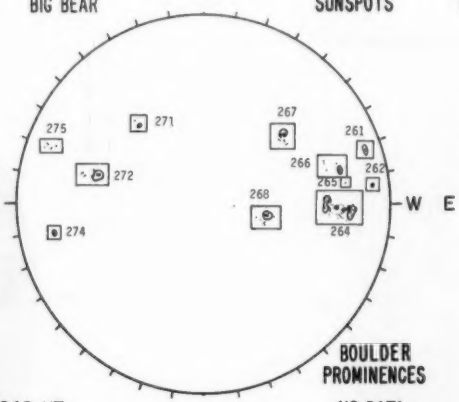
Sp

SACRAMENTO PEAK Hα



1436 UT

BIG BEAR SUNSPOTS



1940 UT

BIG BEAR ACTIVE REGIONS

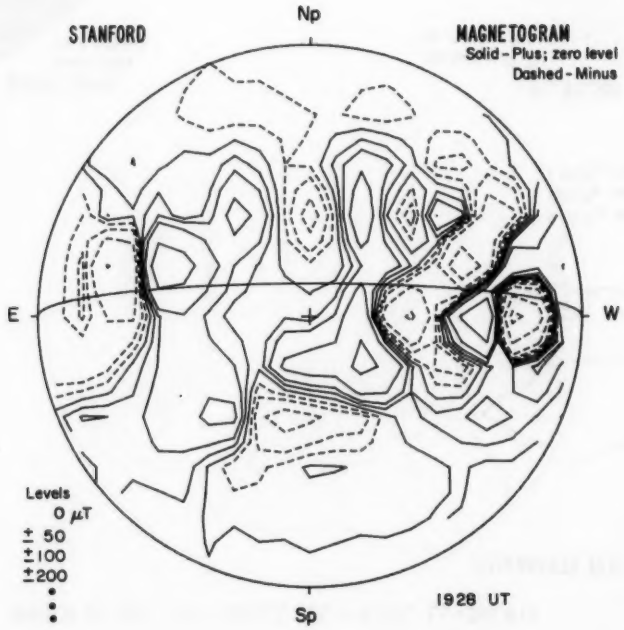
NO DATA

BOULDER PROMINENCES

NO DATA

STANFORD MAGNETOGRAM

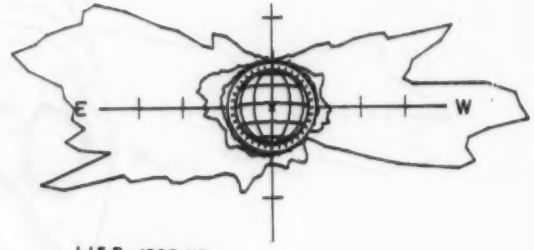
Solid - Plus; zero level
Dashed - Minus



1928 UT

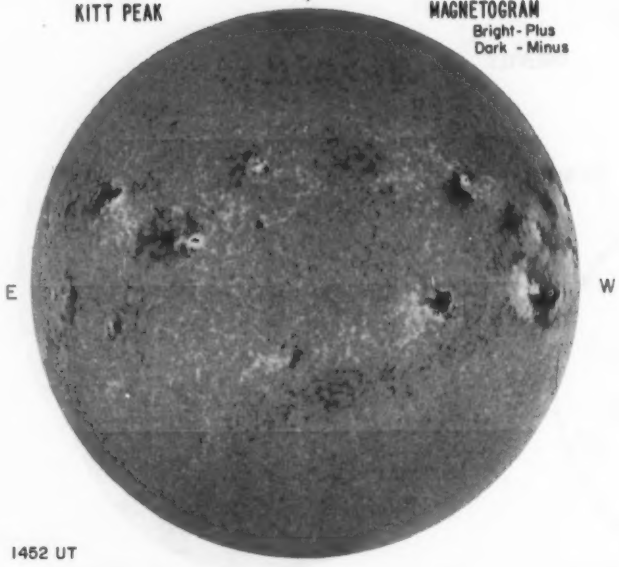
MARCH 21, 1982 (P=-25.27, B_o=-7.02, L_o=56.41)

SACRAMENTO PEAK Np CORONA
5303 Å



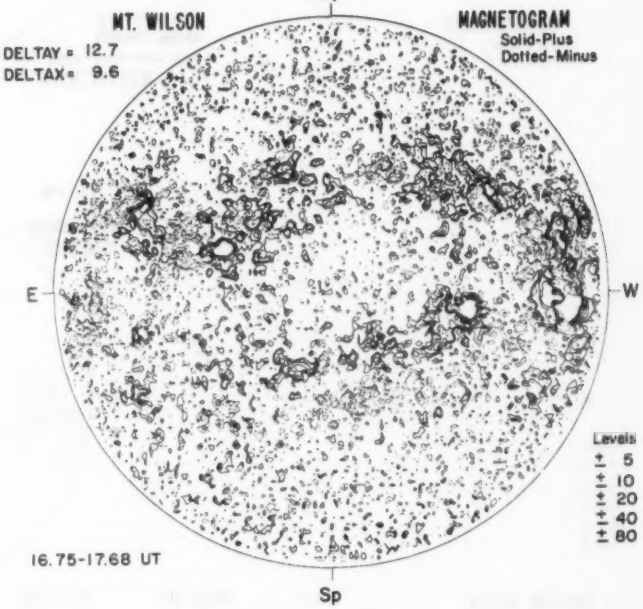
1.15 $R_\odot$ 1508 UT
1.35 $R_\odot$ 1448 UT
1.55 $R_\odot$ 1455 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1452 UT

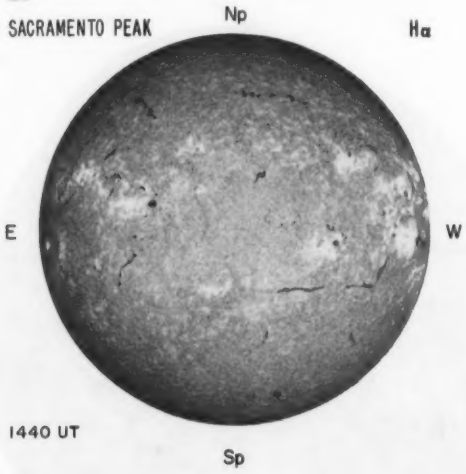
Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.6



16.75-17.68 UT

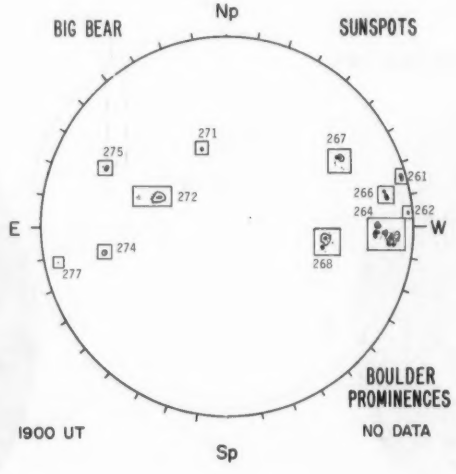
21

SACRAMENTO PEAK



1440 UT

BIG BEAR SUNSPOTS

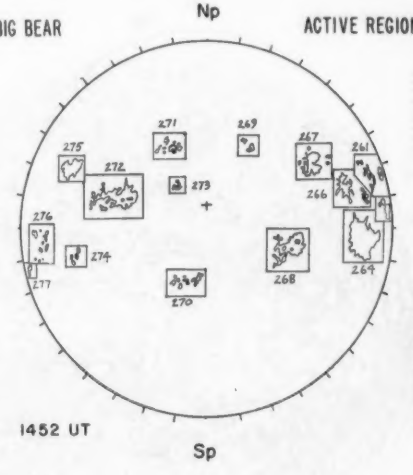


1900 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

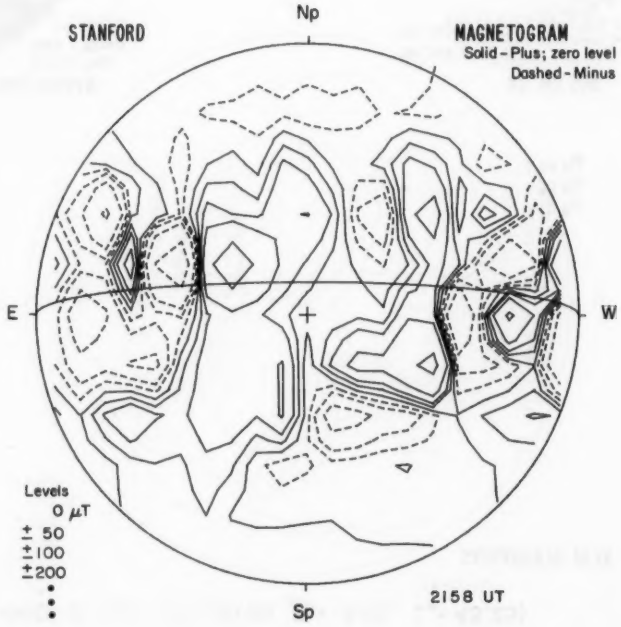


1452 UT

	FAIR	MM
61-	1700-2.5	
62-	1800-3.0	
64-	4500-3.5	
66-	1400-2.5	
67-	1700-2.5	
68-	1800-2.5	
72-	2800-2.5	
75-	1400-2.5	

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2158 UT

MARCH 22, 1982 (P=-25.39, B_o=-6.98, L_o=43.23)

SACRAMENTO PEAK Np CORONA 5303 Å

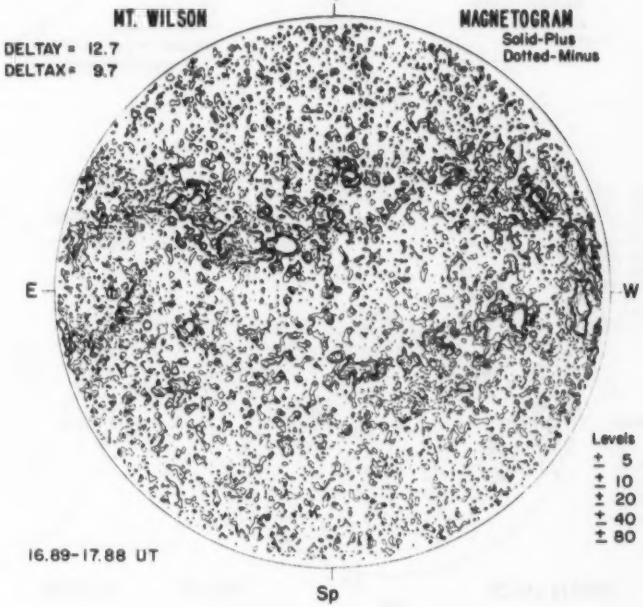
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

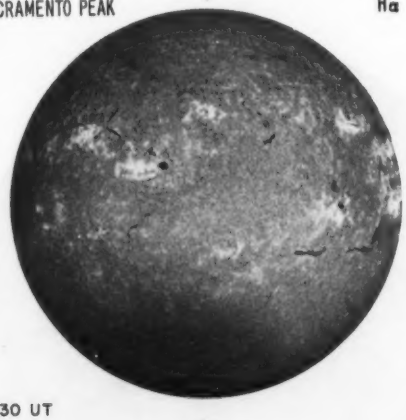
1526 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.7



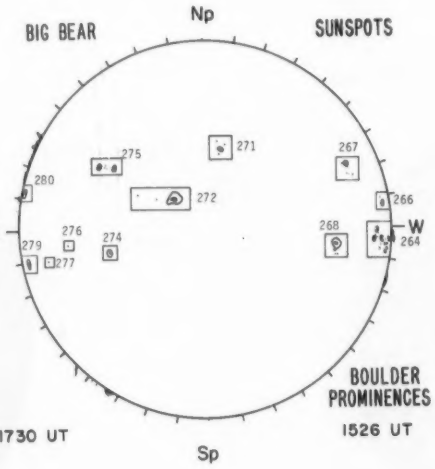
16.89-17.88 UT

SACRAMENTO PEAK



1430 UT

BIG BEAR SUNSPOTS

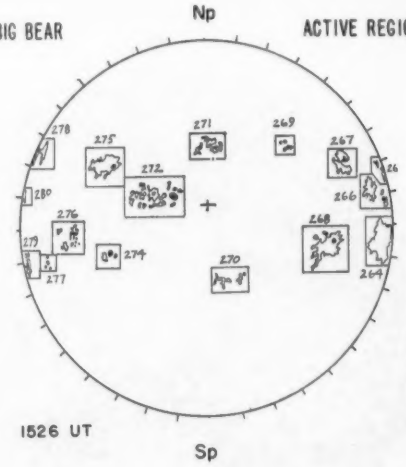


1730 UT

BOULDER PROMINENCES

1526 UT

BIG BEAR ACTIVE REGIONS



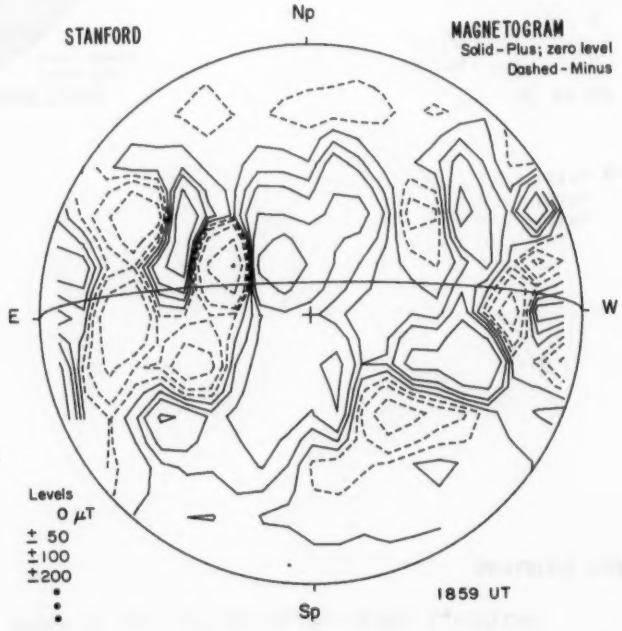
1526 UT

FAIR	WM
64-	4000-3.5
66-	1800-2.5
67-	1400-2.5
68-	1800-2.5
72-	2000-2.5
75-	1700-2.5
79-	1000-2.5
80-	0500-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1859 UT

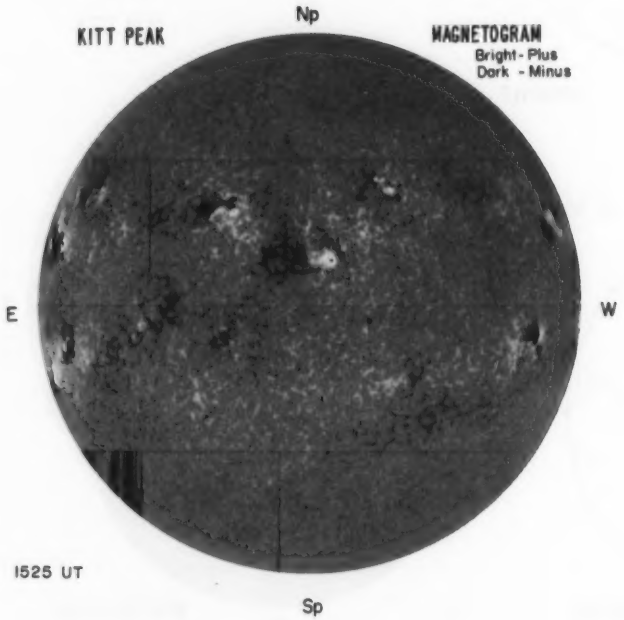
MARCH 23, 1982 (P=-25.50, B_o=-6.95, L_o=30.04)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

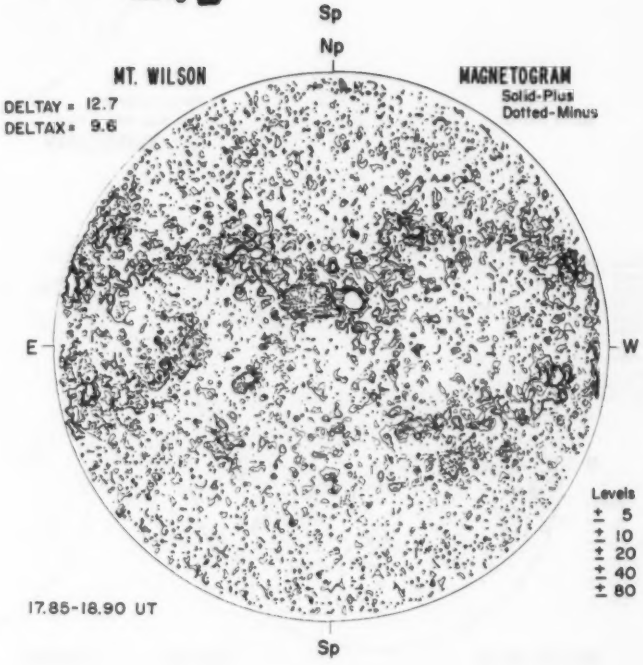
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1525 UT

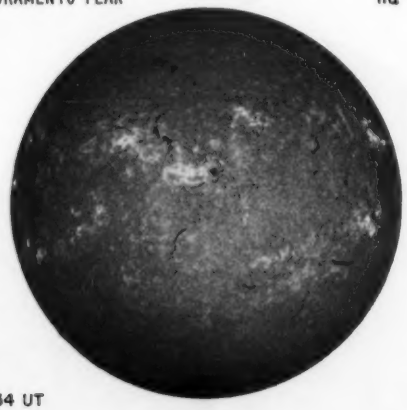
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.6



17.85-18.90 UT

23

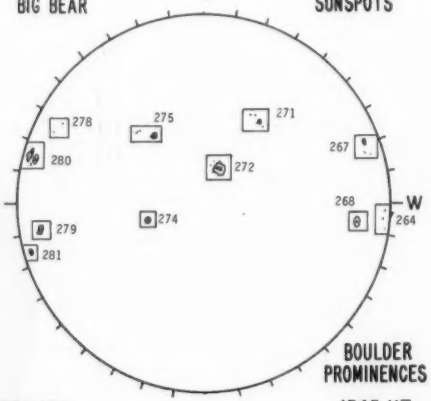
SACRAMENTO PEAK Np Hα



E W

1434 UT Sp

BIG BEAR Np SUNSPOTS



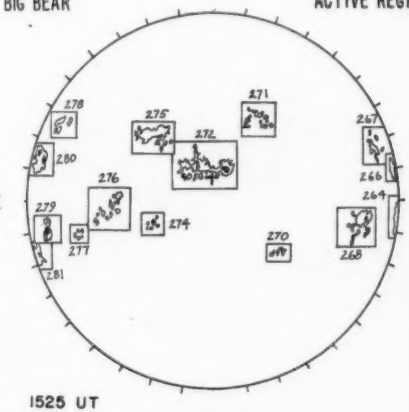
E W

1730 UT Sp

BOULDER PROMINENCES

1545 UT

BIG BEAR Np ACTIVE REGIONS



E W

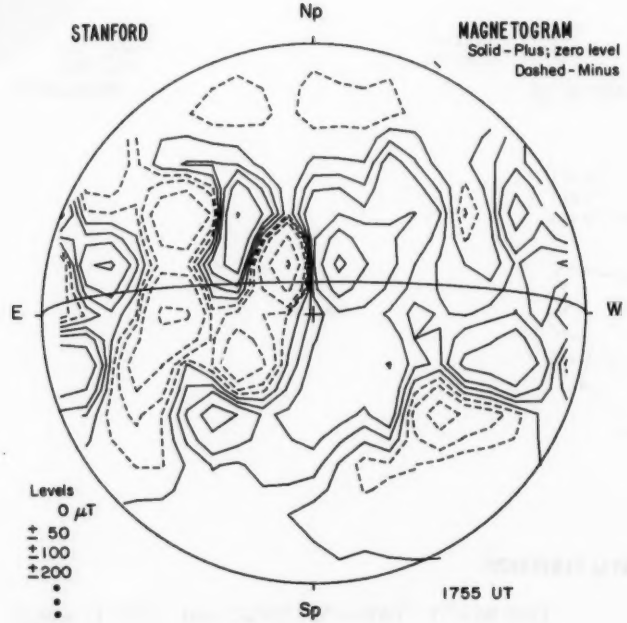
1525 UT Sp

	POOR	MM
67-	1300	2.5
68-	1800	2.5
72-	1800	2.5
75-	1700	3.0
78-	1200	2.5
79-	0800	2.5
80-	2800	3.0
81-	1500	3.0

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

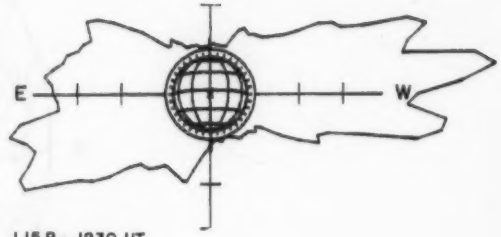
1755 UT Sp

85

Mar 82

MARCH 24, 1982 (P=-25.60, B_o=-6.91, L_o= 16.86)

SACRAMENTO PEAK Np CORONA
5303 Å

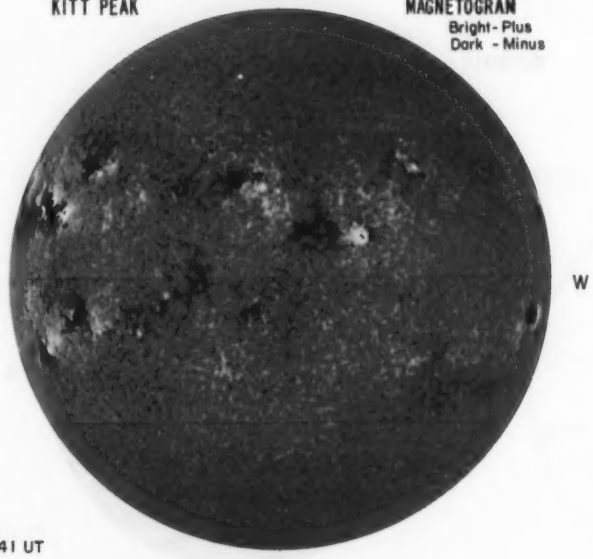


1.15 $R_\odot$ 1830 UT
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright-Plus
Dark - Minus



1541 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
+ 5
++ 10
+++ 20
++++ 40
+++++ 80

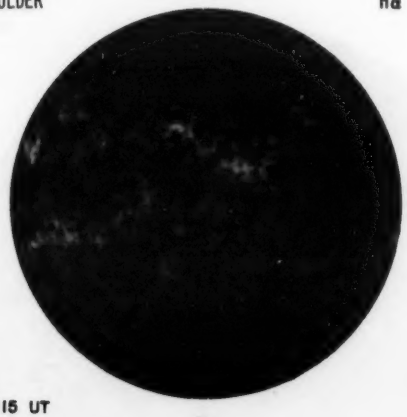
Sp

24

BOULDER

Np

Hα



E

W

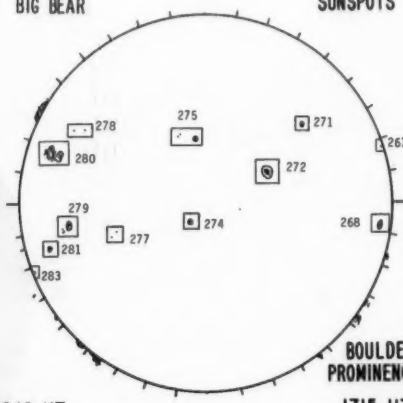
Sp

1715 UT

BIG BEAR

Np

SUNSPOTS



E

W

Sp

1840 UT

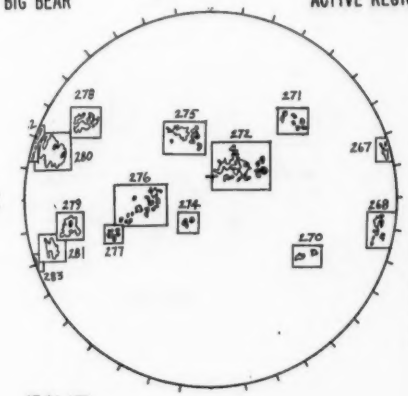
BOULDER PROMINENCES

1715 UT

BIG BEAR

Np

ACTIVE REGIONS



GOOD | WM

67- 1000-2.5
72- 1700-2.5
75- 1500-3.0
79- 1300-2.5
80- 3800-3.5
81- 1200-2.5

E

W

Sp

1541 UT

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

87

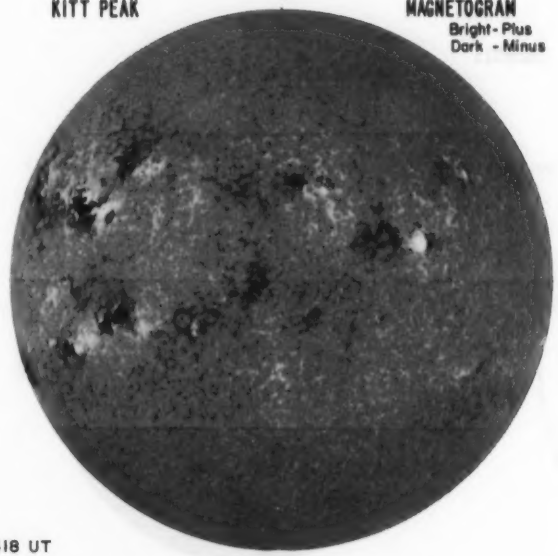
Mar 82

MARCH 25. 1982 (P=-25.70, B_o=-6.87, L_o= 3.67)

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1618 UT

Sp

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

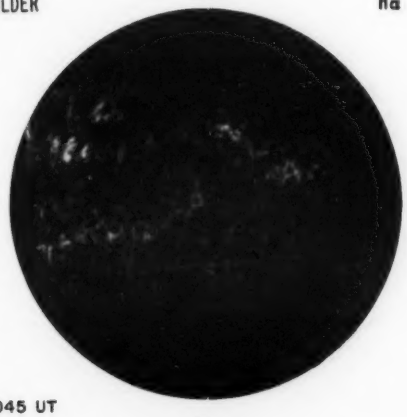
W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

25

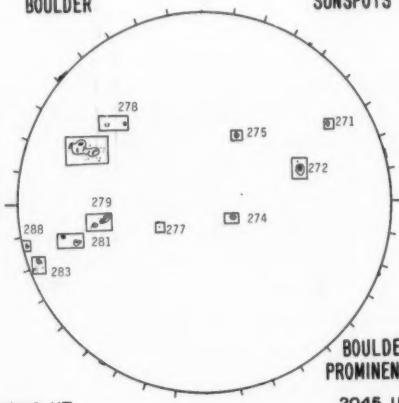
BOULDER Np Hα



E W

2045 UT Sp

BOULDER Np SUNSPOTS



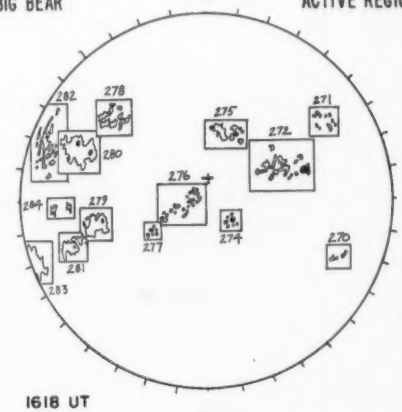
E W

2040 UT Sp

BOULDER PROMINENCES

2045 UT

BIG BEAR Np ACTIVE REGIONS



E W

1618 UT Sp

FAIR	WM
72-	1700-2.5
75-	1200-2.5
79-	1800-2.5
80-	4000-3.5
81-	1800-2.5
82-	3500-2.0
83-	2500-2.5

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

MARCH 26, 1982 (P=-25.79, B_o=-6.83, L_o=350.48)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

NO DATA

W

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

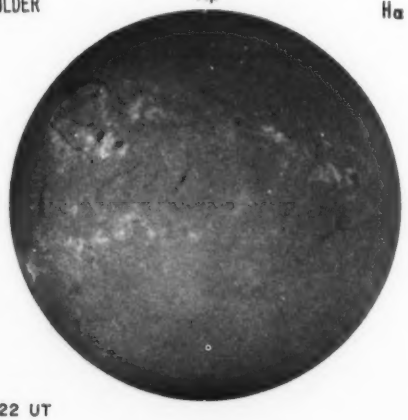
Sp

Sp

26

BOULDER

Np



Hα

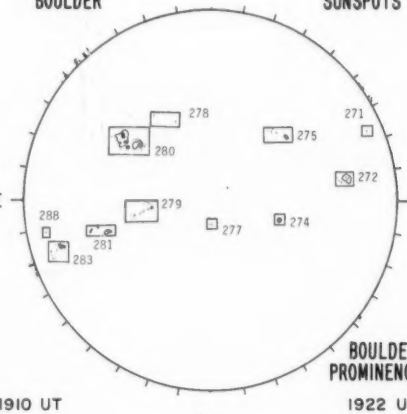
E W

1922 UT

Sp

BOULDER

Np



E W E

1910 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1922 UT

BIG BEAR

Np

NO DATA

W

Sp

ACTIVE REGIONS

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

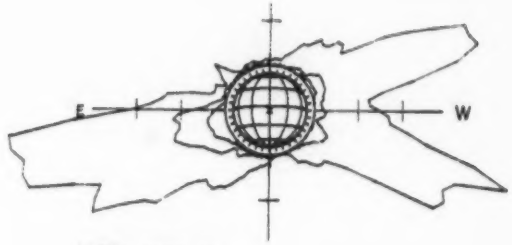
Sp

91

Mar 82

MARCH 27, 1982 (P=-25.88, B_o=-6.79, L_o=337.30)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 2052 UT
1.35 $R_\odot$ 2031 UT
1.55 $R_\odot$ 2041 UT

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

Sp

27

BOULDER

Np

Hα

E

NO DATA

W

Sp

BIG BEAR

Np

286

280

271

275

285

272

279

281

277

274

288

283

E

W

2000 UT

Sp

SUNSPOTS

BIG BEAR

Np

BOULDER PROMINENCES

NO DATA

ACTIVE REGIONS

NO DATA

E

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

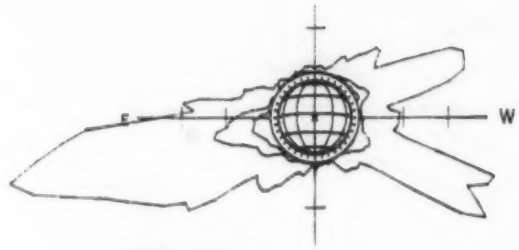
Sp

93

Mar 82

MARCH 28, 1982 (P=-25.95, B_o=-6.74, L_o=324.11)

SACRAMENTO PEAK Np CORONA
5303 Å

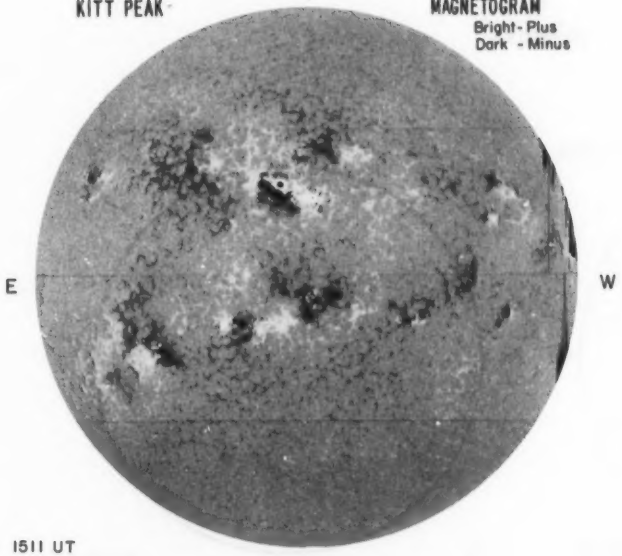


1.15 $R_\odot$ 1503 UT
1.35 $R_\odot$ 1442 UT
1.55 $R_\odot$ 1452 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1511 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX=

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

Sp

1511 UT

Sp

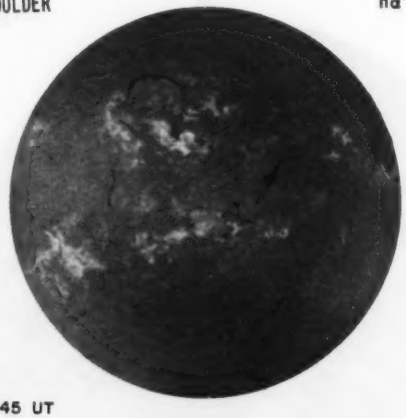
Sp

28

BOULDER

Np

Hα



E

W

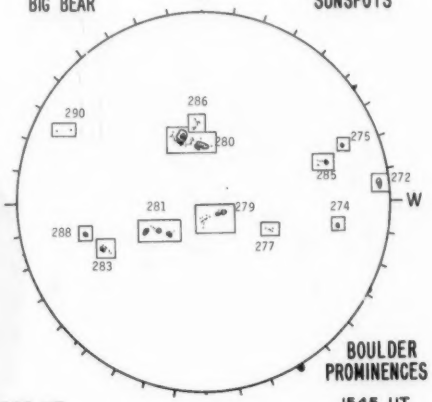
1545 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

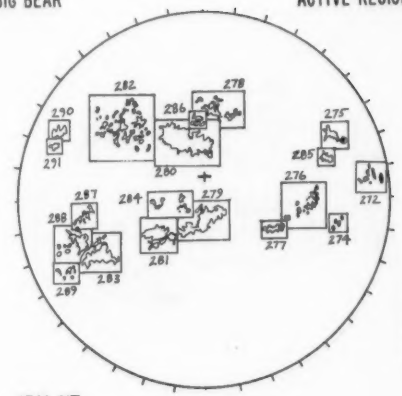
1545 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS



E

W

1511 UT

Sp

POOR	WM
75- 1100-2.5	
77- 0500-2.5	
79- 1800-2.5	
80- 3800-3.5	
81- 1500-2.5	
83- 2000-2.5	
91- 0200-2.5	

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

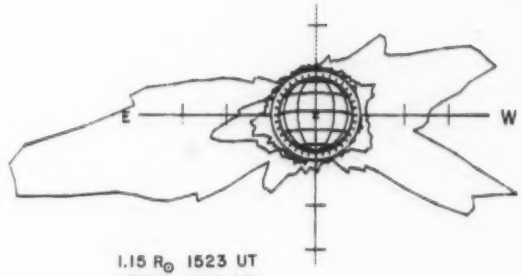
±100

±200

Sp

MARCH 29, 1982 (P=-26.02, B_o=-6.70, L_o=310.92)

SACRAMENTO PEAK Np CORONA
5303 Å

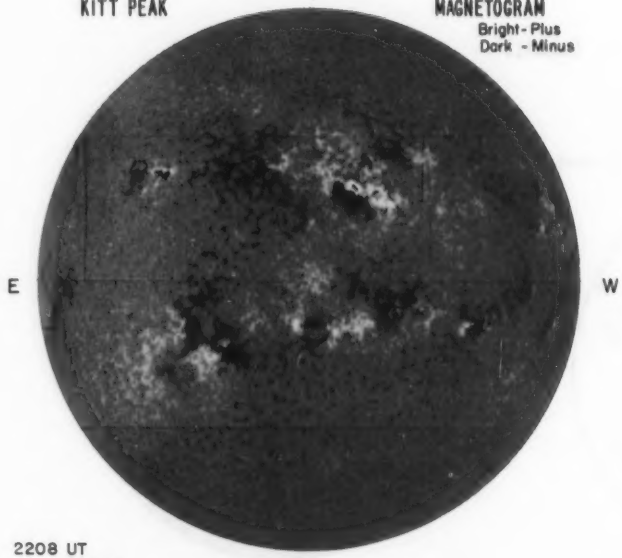


1.15 $R_\odot$ 1523 UT
1.35 $R_\odot$ 1514 UT
1.55 $R_\odot$ 1531 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



2208 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± ± 40
± ± ± 80

Sp

Sp

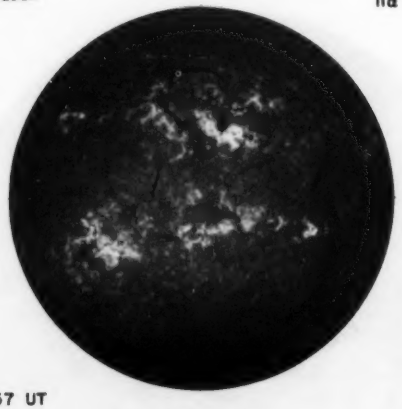
Sp

29

BOULDER

Np

Hα



E

W

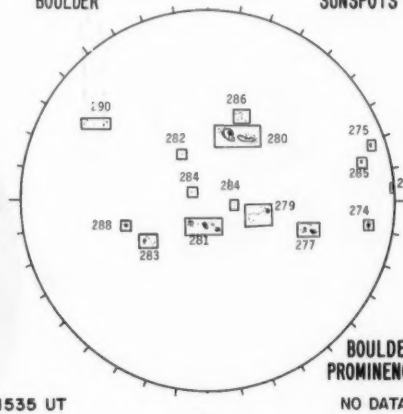
1557 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1535 UT

Sp

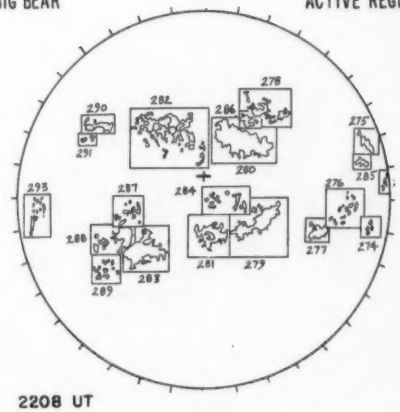
BOULDER PROMINENCES

NO DATA

BIG BEAR

Np

ACTIVE REGIONS



E

W

POOR	WN

75- 1000-2.5
77- 0900-2.5
78- 1300-2.5
79- 1800-3.0
80- 3800-3.5
81- 1400-2.5
83- 2000-2.5

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

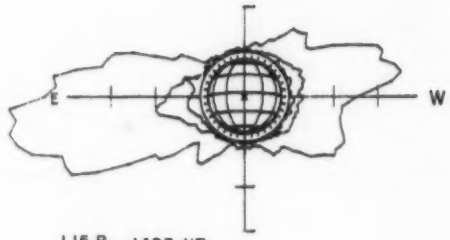
Sp

97

Mar 82

MARCH 30, 1982 (P=-26.08, B_o=-6.65, L_o=297.73)

SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1423 UT
1.35 $R_\odot$ 1431 UT
1.55 $R_\odot$ 1441 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

1546 UT

Sp

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

Sp

Sp

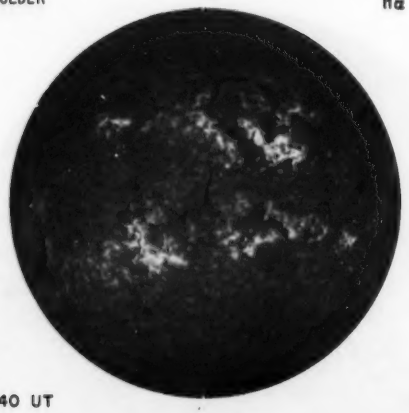
Sp

30

BOULDER

Np

Hα



E

W

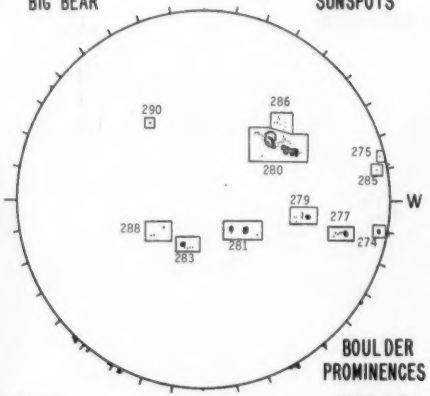
1540 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1900 UT

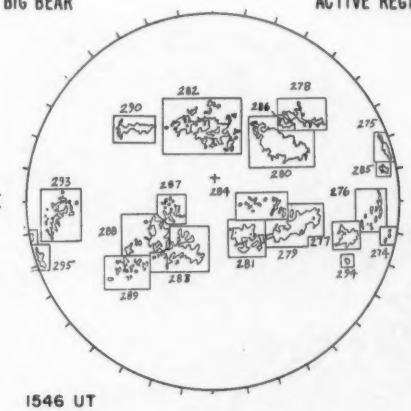
1540 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS



E

W

POOR	WM

77- 1000-2.5
78- 1100-2.5
79- 1600-2.5
80- 3800-3.5
81- 1200-2.5
83- 1700-2.5
90- 0800-3.0
95- 0800-2.5
96- 0400-2.5

1546 UT

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

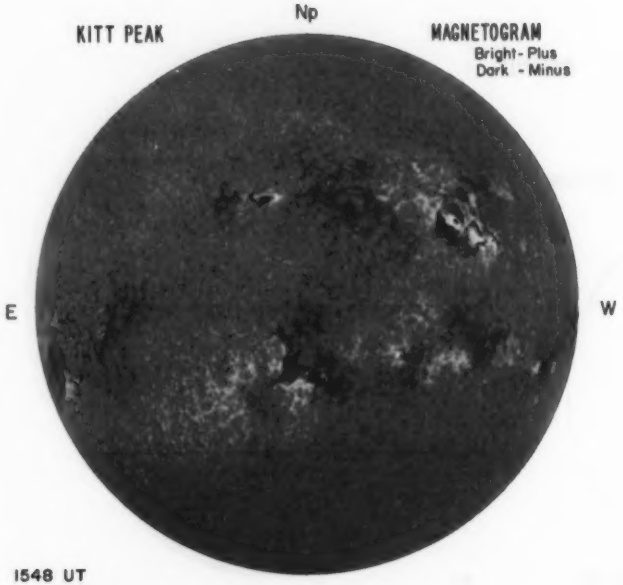
MARCH 31, 1982 (P=-26.14, B_o=-6.60, L_o= 284.54)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

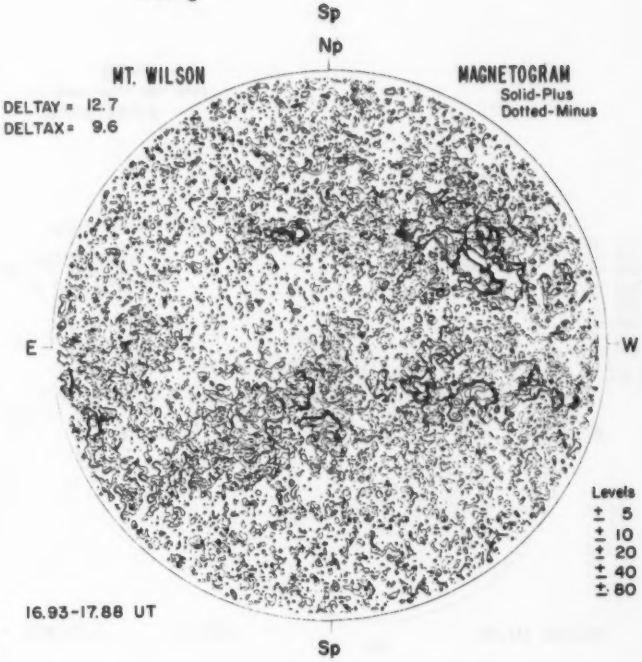


MAGNETOGRAM
Bright - Plus
Dark - Minus

1548 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6



MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

16.93-17.88 UT

1548 UT

Sp

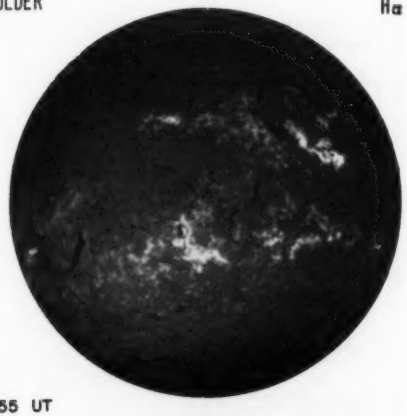
Sp

31

BOULDER

Np

Hα



E

W

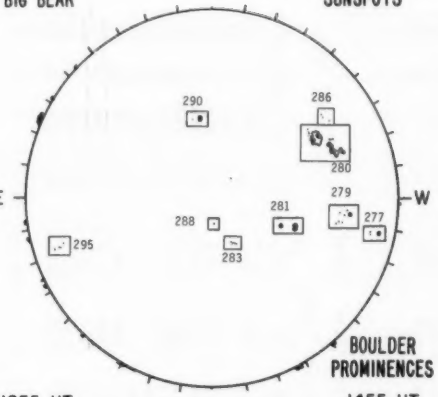
1455 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1835 UT

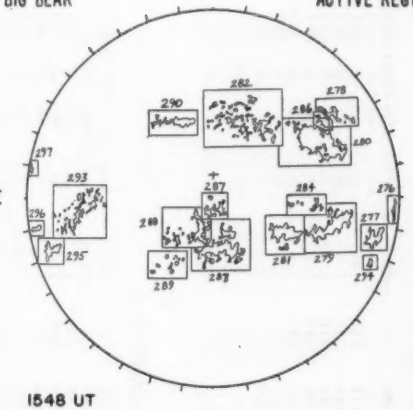
1455 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS



E

W

FAIR

77- 1000-2.5
78- 1000-2.5
79- 1700-2.5
80- 3800-3.5
81- 1200-2.5
83- 2300-3.0
90- 0800-3.0
95- 1400-3.0
97- 0500-2.5

1548 UT

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18250 CMP DATE 1.0 RETURN OF REGION 18184 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	23	18250					23003	N08 E77	312	(AP)	3	H		1	AXX
82	02	25	18250					23003	N06 E49	315	(B)	3	B	10	3	BXO
82	02	26	18250	N07 E35	316	1800	2.5	23003	N06 E35	316	(B)	3	B	40	6	DAO
82	02	27	18250	N07 E20	316	1500	2.5	23003	N06 E20	318	(B)	3	B	10	1	AXX
82	02	28	18250	N07 E07	317	1000	2.5	23003	N07 E07	317	B	2	L	10	4	AXX
82	03	1	18250						N11 W13				L		1	AXX
82	03	2	18250						N12 W26				L		1	AXX
82	03	3	18250	N07 W34	319	700	2.0									
82	03	4	18250	N07 W47	319	600	2.0									

HALE REGION 18242 CMP DATE 1.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	27	18242	S15 E28	308	400	2.0	23011	S17 E29	309	(B)	2	B	20	3	CRO
82	02	28	18242	S15 E16	308	1000	2.5	23011	S16 E16	308	(B)	3	H	80	16	CRO
82	03	1	18242						S14 E04				H	100	18	CRO
82	03	2	18242						S14 W10				B	50	19	CRI
82	03	3	18242	S16 W24	309	1000	2.5	23011	S15 W26	309	B	4	H	40	9	CSO
82	03	4	18242	S15 W36	308	1000	2.5	23011	S16 W38	309	(B)	3	H	20	6	BXO
82	03	5	18242	S16 W50	308	1200	3.0	23011	S15 W55	311	AP	3	H	10	1	AXX
82	03	6	18242	S17 W64	309	1000	3.5	23011	S16 W68	313	(AP)	2	H		1	AXX
82	03	7	18242	S16 W77	309	500	3.5									

HALE REGION 18236 CMP DATE 1.9 RETURN OF REGION 18190 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	23	18236					23004	N19 E88	301	(AP)	4	H	200	1	HHX
82	02	24	18236						N14 E72				B	210	2	HAX
82	02	25	18236					23004	N14 E58	306	(AP)	5	B	320	4	DAI
82	02	26	18236	N14 E46	305	1400	3.0	23004	N14 E42	309	(AP)	5	B	390	6	DSI
82	02	27	18236	N14 E32	304	2000	2.5	23004	N14 E31	307	(B)	5	H	450	15	DHI
82	02	28	18236	N14 E18	306	2300	2.5	23004	N14 E18	306	B	5	H	470	22	DHI
82	03	1	18236						N14 E04				H	390	7	CKO
82	03	2	18236						N14 W09				B	550	17	CKI
82	03	3	18236	N14 W23	308	1500	2.5	23004	N13 W25	308	BP	6	H	520	10	DKI
82	03	4	18236	N14 W36	308	1400	2.5	23004	N13 W37	308	(BP)	5	H	540	11	CHO
82	03	5	18236	N14 W50	308	1400	2.5	23004	N13 W51	307	BP	5	H	520	5	DHO
82	03	6	18236	N14 W64	309	1400	3.0	23004	N13 W63	308	(AP)	5	H	440	3	CHO
82	03	7	18236	N14 W77	309	700	3.0	23004	N13 W78	309	(AP)	3	H	430	1	HHX

HALE REGION 18237 CMP DATE 2.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	24	18237						S05 E76				B		1	AXX
82	02	25	18237					23007	S05 E61	303	(AP)	3	B	80	1	HSX
82	02	26	18237	S07 E52	299	1500	3.0	23007	S05 E48	303	(AP)	4	B	80	1	HSX
82	02	27	18237	S07 E38	298	1700	3.5	23007	S05 E35	303	(BP)	4	H	110	8	CSO
82	02	28	18237	S07 E26	298	1400	3.0	23007	S05 E22	302	BP	4	B	60	4	CSO
82	03	1	18237						S05 E10				H	150	7	CSO
82	03	2	18237						S04 W04				B	70	2	HSX
82	03	3	18237	S07 W14	299	1300	2.5	23007	S04 W20	303	BP	4	H	50	6	CSO
82	03	4	18237	S07 W27	299	1300	2.5	23007	S04 W28	299	(B)	4	H	130	11	CSO
82	03	5	18237	S06 W40	298	2000	3.0	23007	S05 W44	300	B	4	H	180	7	DSO
82	03	6	18237	S05 W54	299	1700	3.0	23007	S05 W55	300	(BP)	4	H	120	4	CSO
82	03	7	18237	S05 W68	300	1800	3.0	23007	S05 W72	303	(AP)	3	H	110	2	CSO

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18238 CMP DATE 2.8

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	24	18238							N07	E70				R	20	6	BXO
82	02	25	18238						23008	N09	E66	298	(B)	3	B	30	3	CRO
82	02	26	18238	N08	E52	299	700	2.5	23008	N09	E51	300	(B)	3	B	20	3	BXO
82	02	27	18238	N08	E37	299	700	2.5	23008	N09	E39	299	(B)	3	H	30	5	CRO
82	02	28	18238	N08	E25	299	600	2.0	23008	N08	E24	300	BP	4	H	20	1	HSX
82	03	3	18238	N08	W11	296	400	2.0	23008	N08	W18	301	AP	3	H		1	AXX
82	03	4	18238	N08	W24	296	700	2.0	23008	N08	W28	299	(AP)	3	H		1	AXX
82	03	5	18238	N08	W37	295	600	2.5		N11	W39				H		1	AXX
82	03	6	18238	N09	W50	295	500	2.5										
82	03	7	18238	N09	W63	295	300	2.0		N07	W58				H	250	10	DSO

HALE REGION 18239 CMP DATE 2.9 RETURN OF REGION 18189 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	26	18239	S17	E57	294	1300	2.0										
82	02	27	18239	S19	E44	292	1400	2.0		S15	E47				M	10	4	BXO
82	02	28	18239	S19	E33	291	1400	2.0										
82	03	3	18239	S19	W09	294	1400	2.0										
82	03	4	18239	S20	W22	294	1800	2.0										
82	03	5	18239	S20	W34	292	1800	2.5										
82	03	6	18239	S19	W48	293	2400	3.0										
82	03	7	18239	S20	W60	292	2300	2.0										
82	03	9	18239	S20	W86	292	400	1.0										

HALE REGION 18240 CMP DATE 3.2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	24	18240							N16	E85				M	280	1	HKX
82	02	25	18240						23009	N16	E71	293	(AP)	3	B	150	3	CAO
82	02	26	18240	N14	E64	287	4700	3.5	23009	N16	E59	292	(AP)	4	B	230	5	DAI
82	02	27	18240	N15	E47	289	5000	3.5	23009	N16	E46	292	(B)	4	H	460	19	DKO
82	02	28	18240	N15	E35	289	5000	3.5	23009	N18	E35	289	BY	5	H	470	38	EAI
82	03	1	18240							N16	E19				H	440	97	FAC
82	03	2	18240							N17	E07				B	260	36	EAI
82	03	3	18240	N15	W05	290	5000	3.0	23009	N17	W10	293	BY	5	H	210	20	DAO
82	03	4	18240	N15	W17	289	5400	3.0	23009	N17	W20	291	(D)	5	H	390	27	CKI
82	03	5	18240	N16	W29	287	4700	3.5	23009	N17	W34	290	D	5	H	320	24	DKC
82	03	6	18240	N16	W42	287	4800	3.5	23009	N17	W45	290	(D)	4	H	320	14	CKI
82	03	7	18240	N16	W55	287	4700	3.5	23009	N17	W58	289	(D)	4	B	150	4	CRO
82	03	8	18240						23009	N17	W72	289	B	3	B	120	2	DSO
82	03	9	18240	N17	W81	287	2000	3.5										

HALE REGION 18243 CMP DATE 4.7 RETURN OF REGION 18192 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	27	18243	S08	E67	269	100	2.0										
82	02	28	18243	S10	E54	270	300	2.0										
82	03	3	18243	S09	E14	271	200	1.0										
82	03	4	18243	S09	E01	271	300	1.0										
82	03	5	18243	S09	W12	270	300	1.5										
82	03	6	18243	S08	W26	271	300	1.5										
82	03	7	18243	S08	W39	271	300	1.0										
82	03	9	18243	S07	W66	272	200	1.0										

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18244 CMP DATE 5.0

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	28	18244	S15	E62	262	300	2.5	23013	S13	E59	265	B	2	H	10	2	BXO
82	03	1	18244							S14	E46				H	110	12	DSO
82	03	2	18244							S13	E31				B	190	19	DAI
82	03	3	18244	S15	E21	264	1100	3.5	23013	S13	E16	267	BY	5	H	160	22	DAI
82	03	4	18244	S15	E05	267	1800	3.5	23013	S13	E04	267	(BY)	5	H	400	32	ESI
82	03	5	18244	S15	W10	268	2500	3.5	23013	S13	W11	267	BY	5	H	780	47	EKI
82	03	6	18244	S14	W23	268	2500	3.5	23013	S13	W22	267	(BY)	5	H	630	41	EKI
82	03	7	18244	S14	W36	268	3000	3.0	23013	S13	W37	268	(B)	5	H	630	42	EHI
82	03	8	18244						23013	S13	W51	268	B	4	B	320	17	EAI
82	03	9	18244	S13	W63	269	2800	3.5	23013	S13	W64	269	(B)	4	H	410	14	EKI
82	03	10	18244	S14	W77	268	1500	3.0		S14	W76				H	120	5	EKO

HALE REGION 18241 CMP DATE 5.1

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	26	18241	S24	E83	268	4500	2.0	23010	S20	E80	271	AP	3	B	250	1	HKX
82	02	27	18241	S24	E70	266	4300	3.0	23010	S20	E70	268	(B)	4	H	1410	15	DKI
82	02	28	18241	S24	E58	266	4200	3.0	23010	S21	E58	266	BY	5	H	1400	17	EKC
82	03	1	18241							S21	E43				H	970	38	EKI
82	03	2	18241							S18	E30				B	1200	38	EKI
82	03	3	18241	S23	E20	265	3800	3.5	23010	S20	E17	266	BY	5	H	540	45	EKI
82	03	4	18241	S23	E06	266	3800	3.5	23010	S21	E05	266	(BY)	5	H	740	47	EAI
82	03	5	18241	S21	W09	267	3800	3.5	23010	S20	W11	267	BY	5	H	560	51	EKI
82	03	6	18241	S22	W22	267	3500	3.5	23010	S20	W24	269	(BY)	5	H	590	30	EKO
82	03	7	18241	S22	W34	266	3700	3.0	23020	S26	W20	251	(AF)	2				
82	03	7	18241	S22	W34	266	3700	3.0	23010	S20	W36	267	(BP)	4	H	430	19	CKO
82	03	8	18241						23010	S20	W55	272	AP	4	B	440	5	CKO
82	03	9	18241	S22	W61	267	3500	3.0	23010	S20	W66	271	(AP)	3	H	370	2	DKC
82	03	10	18241	S21	W75	266	1500	3.0		S20	W79				H	130	1	HKX
82	03	11	18241							S20	W86				L	210	1	HKX

HALE REGION 18260 CMP DATE 5.8

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	10	18260	N13	W65	256	300	2.5		N14	W62				H	10	3	BXO
82	03	11	18260							N13	W70				L		1	AXX

HALE REGION 18245 CMP DATE 6.3

				CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	28	18245	S07	E78	246	500	2.5										
82	03	3	18245	S07	E38	247	200	2.0										
82	03	4	18245	S07	E23	249	200	1.5										
82	03	5	18245	S07	E10	248	100	1.0										
82	03	6	18245	S07	W04	249	100	1.0										
82	03	7	18245	S07	W17	249	100	1.0										
82	03	9	18245	S07	W44	250	100	1.0										
82	03	10	18245	S09	W58	249	100	1.0										

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18246 CMP DATE 8.0 RETURN OF REGION 18198 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	3	18246	S17	E54	231	400	1.5										
82	03	4	18246	S19	E40	232	300	1.5										
82	03	5	18246	S19	E29	229	300	1.5										
82	03	6	18246	S19	E17	228	300	1.5										
82	03	7	18246	S20	E05	227	300	1.5										

HALE REGION 18257 CMP DATE 8.1

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	6	18257	S05	E20	225	700	4.0	23018	S06	E20	225	(BP)	3	H	50	12	BXO
82	03	7	18257	S05	E07	225	400	3.5	23018	S06	E07	224	(B)	3	H	50	12	BXO
82	03	8	18257						23018	S06	W08	225	B	3	B	10	3	BXO
82	03	9	18257	S06	W19	225	400	3.0	23018	S06	W22	227	(B)	3	H	30	13	BXO
82	03	10	18257	S06	W35	226	400	2.5										

HALE REGION 18247 CMP DATE 8.8 RETURN OF REGION 18201 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	3	18247	S11	E70	215	3000	2.5										
82	03	4	18247	S11	E57	215	5100	2.5										
82	03	5	18247	S12	E45	213	4000	2.5										
82	03	6	18247	S11	E31	214	3100	2.5										
82	03	7	18247	S11	E18	214	3000	2.5										
82	03	9	18247	S12	W10	216	3400	2.5	23022	S10	W12	217	(AP)	3	H	30	13	BXO
82	03	9	18247	S12	W10	216	3400	2.5	23023	S17	W07	212	(B)	3	R	20	1	HRX
82	03	10	18247	S12	W23	214	2800	2.5		S10	W25				H	10	5	BXO

HALE REGION 18248 CMP DATE 9.9

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	3	18248	S07	E80	205	1300	2.5	23015	S06	E77	206	AP	3	H	30	1	HSX
82	03	4	18248	S07	E70	202	1700	2.5	23015	S08	E65	206	(AP)	4	H	80	1	HSX
82	03	5	18248	S08	E57	201	3000	2.0	23015	S08	E50	206	AP	4	H	80	1	HSX
82	03	6	18248	S08	E42	203	2200	2.0	23015	S08	E38	207	(AP)	5	H	80	1	HSX
82	03	7	18248	S08	E30	202	2200	2.5	23015	S08	E25	206	(BP)	4	H	70	1	HSX
82	03	8	18248						23015	S08	E11	206	AP	4	B	40	1	HSX
82	03	9	18248	S08	E04	202	2500	2.5	23015	S09	W01	206	(AP)	4	H	40	1	HSX
82	03	10	18248	S08	W10	201	2000	2.5		S08	W13				H	30	1	HSX
82	03	11	18248							S08	W27				H	20	1	HSX
82	03	12	18248						23015	S08	W42	206	AP	4	H	60	1	HSX

HALE REGION 18251 CMP DATE 10.7 RETURN OF PORTION OF REGION 18201 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	4	18251						23016	S12	E80	191	(AP)	2	H	60	1	HSX
82	03	5	18251	S15	E65	193	500	2.0	23016	S12	E65	191	AP	4	H	100	1	HSX
82	03	6	18251	S13	E52	193	400	2.0	23016	S12	E53	192	(AP)	4	H	50	1	HAX
82	03	7	18251	S13	E40	192	400	2.0	23016	S12	E38	193	(AP)	4	H	60	1	HSX
82	03	8	18251						23016	S13	E24	193	AP	4	B	20	1	HAX
82	03	9	18251	S13	E14	192	600	2.0	23016	S13	E12	193	(AP)	4	H	20	3	CSO
82	03	10	18251	S13	W01	192	300	1.5		S12	W01				H	20	1	HSX
82	03	11	18251							S12	W15				H	20	1	HSX
82	03	12	18251						23016	S12	W29	193	AP	3	H	10	1	AXX

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18252 CMP DATE 10.9

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	5	18252	S17	E70	188	700	1.5										
82	03	6	18252	S17	E58	187	500	1.0										
82	03	7	18252	S19	E45	187	500	1.5										
82	03	9	18252	S19	E17	189	500	2.0										

HALE REGION 18256 CMP DATE 11.1

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	7	18256	N08	E47	185	400	3.0		N06	E51				H	440	17	EKO
82	03	8	18256						23021	N08	E32	185	B	3	B	450	15	EKO
82	03	9	18256	N08	E20	186	600	3.0	23021	N07	E20	185	(B)	3	H	510	21	EKI
82	03	10	18256	N08	E04	187	600	2.5										
82	03	11	18256							N06	E05				L	460	21	EKO
82	03	12	18256						23021	N10	W22	186	B	3	H	40	7	CRO

HALE REGION 18253 CMP DATE 11.5 RETURN OF REGION 18207 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	5	18253	S12	E77	181	500	1.5										
82	03	6	18253	S12	E64	181	600	2.0										
82	03	7	18253	S13	E54	178	1200	1.0		S10	E49				M		1	HSX
82	03	9	18253	S14	E28	178	800	1.0	23024	S15	E23	182	(AF)	2	H	20	3	CSO
82	03	10	18253	S15	E10	181	600	1.0		S12	E08				L	20	2	CSO

HALE REGION 18254 CMP DATE 11.8

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	5	18254	N05	E78	180	4000	3.5	23017	N05	E75	181	B	3	H	300	8	ESI
82	03	6	18254	N05	E65	180	5500	4.0	23017	N05	E64	181	(B)	5	H	600	5	EKO
82	03	7	18254	N05	E54	178	4800	3.5	23017	N05	E50	181	(BY)	4	H	440	17	EKO
82	03	8	18254						23017	N04	E37	180	B	5	B	450	15	EKO
82	03	9	18254	N05	E27	179	4700	3.5	23017	N04	E23	182	(B)	5	H	510	21	EKI
82	03	10	18254	N05	E13	178	5000	3.5		N04	E12				H	380	23	EKO
82	03	11	18254							N06	E05				L	460	21	EKO
82	03	12	18254						23017	N03	W15	179	BY	5	H	350	14	ESO
82	03	14	18254							N05	W41				B	210	16	EHI
82	03	15	18254							N06	W55				H	300	15	ESI
82	03	16	18254	N05	W68	178	3500	2.5		N05	W68				H	300	12	EAI
82	03	17	18254	N04	W80	180	2800	2.5		N04	W80				H	100	5	CSO

HALE REGION 18263 CMP DATE 12.3

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	16	18263	N25	W60	170	600	1.5										
82	03	17	18263	N25	W70	170	500	1.5		N24	W65				H	10	3	BXO

HALE REGION 18255 CMP DATE 13.1 RETURN OF REGION 18210 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	6	18255	S15	E85	160	1400	3.5	23019	S14	E82	163	AP	2	H	40	2	BXO
82	03	7	18255	S17	E75	157	2500	3.5	23019	S14	E70	161	(AP)	3	H	100	4	DAO
82	03	8	18255						23019	S15	E56	161	AP	4	B	50	2	DSO
82	03	9	18255	S17	E46	160	2100	3.0	23019	S15	E44	161	(BP)	4	H	70	3	DSO
82	03	10	18255	S17	E31	160	2500	3.0		S14	E33				H	40	5	DSO

CONT

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18255 (CONT) CMP DATE 13.1 RETURN OF REGION 18210 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	11	18255							S14	E19				H	30	8	CSO
82	03	12	18255						23027	S15	W05	169	X	2	B	30	3	BXO
82	03	12	18255						23019	S16	E05	159	AP	4	H	30	2	CSO
82	03	14	18255							S13	W19				B	10	4	CSO
82	03	15	18255							S14	W33				H	10	1	AXX
82	03	16	18255	S16	W48	158	1800	2.0		S16	W46				H		1	AXX
82	03	17	18255	S15	W60	160	1500	2.0		S15	W51				M	10	1	AXX
82	03	19	18255	S17	W85	159	400	1.0										

HALE REGION 18258 CMP DATE 15.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	9	18258	S01	E85	121	100	1.5										
82	03	10	18258	S03	E74	117	900	2.0										
82	03	16	18258	S04	W14	124	500	1.5										
82	03	17	18258	S04	W26	126	400	1.5										
82	03	18	18258							S05	W32				R	70	7	DAO
82	03	19	18258	S04	W50	124	300	1.0										

HALE REGION 18259 CMP DATE 16.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	9	18259	S13	E83	123	200	2.0										
82	03	10	18259	S14	E70	121	300	1.5		S11	E72				H		1	AXX
82	03	16	18259	S14	W10	120	300	1.0										
82	03	17	18259	S15	W20	120	400	1.0										

HALE REGION 18262 CMP DATE 16.1 RETURN OF REGION 18216 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	9	18262						23026	N02	E85	120	AP	2	H	70	1	HSX
82	03	10	18262	N02	E70	121	400	2.0		N04	E74				H	70	1	HAX
82	03	11	18262							N03	E59				H	140	3	CAO
82	03	12	18262						23026	N03	E44	120	BY	4	H	260	12	CAO
82	03	14	18262							N02	E20				B	180	15	DAI
82	03	15	18262							N03	E05				H	210	14	DAO
82	03	16	18262	N03	W10	120	1200	2.5		N03	W07				H	160	28	DAI
82	03	17	18262	N03	W20	120	1000	2.5		N03	W19				H	140	30	DSO
82	03	18	18262							N03	W26				L	150	31	DSO
82	03	19	18262	N03	W47	121	1800	3.0		N04	W45				R	150	14	DRO
82	03	20	18262						23026	N02	W61	121	BP	3	H	20	1	HAX
82	03	21	18262	N03	W73	121	1800	3.0	23026	N03	W75	122	(AP)	3	H	20	1	HAX

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18261 CMP DATE 16.5

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	9	18261						23025	N12	E82	123	AP	3	H	70	1	HSX
82	03	10	18261	N12	E68	123	700	2.5		N14	E70				H	270	2	HKX
82	03	11	18261							N14	E59				H	290	1	HKX
82	03	12	18261						23025	N13	E43	121	AP	5	H	430	3	CKO
82	03	14	18261							N12	E19				B	350	2	CKO
82	03	15	18261							N14	E07				H	410	1	HHX
82	03	16	18261	N13	W05	115	2500	3.0		N14	W04				H	550	6	CHO
82	03	17	18261	N13	W16	116	2500	3.0		N13	W21				H	420	7	HHX
82	03	18	18261							N15	W31				R	440	2	HHX
82	03	19	18261	N13	W42	116	2500	3.0		N13	W46				R	280	2	HKX
82	03	20	18261						23025	N13	W60	120	AP	4	H	390	4	HSX
82	03	21	18261	N13	W69	117	1700	2.5	23025	N14	W71	118	(AP)	4	H	250	1	HSX
82	03	22	18261	N14	W82	116	1100	1.0		N14	W81				L	350	1	HHX

HALE REGION 18264 CMP DATE 17.3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	12	18264						23029	S05	E64	100	B	3	H	480	5	DAO
82	03	14	18264							S06	E35				B	520	27	DKI
82	03	15	18264							S06	E25				H	650	26	DKI
82	03	16	18264	S07	E07	103	3700	3.5		S06	E09				H	960	55	EKI
82	03	17	18264	S07	W04	104	3500	3.5		S06	W04				H	1340	63	EKI
82	03	18	18264							S05	W15				R	1400	87	EKO
82	03	19	18264	S07	W31	105	4500	3.5		S07	W30				R	1460	2	EKI
82	03	20	18264						23029	S06	W45	105	BY	5	H	1150	44	FKI
82	03	21	18264	S07	W57	105	4500	3.5	23029	S06	W57	104	(B)	5	H	770	30	FKI
82	03	22	18264	S07	W70	104	4000	3.5	23029	S07	W70	104	(B)	4	H	690	25	FKI
82	03	23	18264	S07	W84	105	1800	2.0	23029	S07	W80	101	B	3	B	220	6	DSO

HALE REGION 18265 CMP DATE 17.6

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	16	18265	N03	E10	100	800	2.0										
82	03	17	18265	N03	W01	101	700	2.0		N04	W04				H	10	7	BXO
82	03	18	18265							N02	W08				L		1	AXX
82	03	19	18265	N02	W27	101	500	2.0		N02	W29				R	20	3	BXO
82	03	20	18265						23034	N02	W46	106	X	2	H		1	AXX

HALE REGION 18266 CMP DATE 17.8 RETURN OF REGION 18217 ROTATION 2

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	12	18266						23030	N05	E67	97	B	2	H	20	6	BXO
82	03	14	18266							N08	E42				B	160	6	DAO
82	03	15	18266							N08	E30				H	370	11	DSO
82	03	16	18266	N08	E13	97	1500	2.5		N07	E14				H	300	15	ESO
82	03	17	18266	N08	E02	98	1300	2.5		N08	E02				H	300	23	ESO
82	03	18	18266							N09	W13				R	410	15	EAO
82	03	19	18266	N08	W24	98	13	2.5		N08	W25				R	330	18	EKO
82	03	20	18266						23030	N07	W41	101	BP	4	H	160	6	DSO
82	03	21	18266	N08	W52	100	1400	2.5	23030	N06	W55	102	(BP)	5	H	160	2	DSO
82	03	22	18266	N08	W66	100	1800	2.5	23030	N07	W70	104	(AP)	4	H	160	3	DSO
82	03	23	18266	N08	W79	100	1800	2.0		N09	W85				R	160	1	HAX

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18267 CMP DATE 18.8

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	15	18267						N15 E42				H	30	11	BXO
82	03	16	18267	N15 E26	84	1400	3.0		N14 E29				H	290	15	DSO
82	03	17	18267	N14 E16	84	2000	3.5		N15 E16				H	250	15	DSO
82	03	18	18267						N17 E05				R	210	12	CAO
82	03	19	18267	N14 W11	85	2000	2.5		N16 W08				R	320	13	CKO
82	03	20	18267					23035	N16 W23	83	BY	4	H	290	11	DSO
82	03	21	18267	N14 W35	83	1700	2.5	23035	N15 W36	83	(BY)	5	H	170	13	CHO
82	03	22	18267	N14 W48	82	1400	2.5	23035	N15 W50	84	(BP)	4	H	170	9	DSO
82	03	23	18267	N14 W62	83	1300	2.5	23035	N15 W62	83	(BP)	3	H	180	3	DSO
82	03	24	18267	N13 W75	83	1000	2.5	23035	N15 W77	84	AP	3	H	60	1	HSX

HALE REGION 18268 CMP DATE 19.6

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	14	18268						S10 E62				B	360	1	HHX
82	03	15	18268						S11 E49				H	280	1	HSX
82	03	16	18268	S13 E35	75	3500	3.0		S10 E37				H	420	5	HSX
82	03	17	18268	S13 E26	74	3400	3.5		S10 E24				H	390	3	CHO
82	03	18	18268						S10 E11				R	370	7	CAO
82	03	19	18268	S13 W01	75	2200	2.5		S10 W02				R	450	6	CHO
82	03	20	18268					23033	S10 W16	76	BP	5	H	340	12	CHO
82	03	21	18268	S13 W27	75	1800	2.5	23033	S10 W30	77	(BY)	5	H	420	12	DKO
82	03	22	18268	S13 W40	74	1800	2.5	23033	S11 W42	76	(BP)	5	H	370	14	CHO
82	03	23	18268	S13 W54	75	1800	2.5	23033	S11 W56	77	(BP)	5	H	390	1	HHX
82	03	24	18268	S13 W66	74	1500	2.0	23033	S10 W70	77	(AP)	4	H	240	1	HSX
82	03	26	18268						S11 W88				L	60	1	HHX

HALE REGION 18269 CMP DATE 20.4 RETURN OF REGION 18220 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	16	18269	N14 E44	66	500	1.0		N14 E37				L	150	13	DAO
82	03	17	18269	N15 E35	65	700	1.5									
82	03	19	18269	N15 E10	64	700	1.5									
82	03	21	18269	N17 W14	62	300	1.0									
82	03	22	18269	N17 W27	61	100	1.0									

HALE REGION 18270 CMP DATE 22.2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	16	18270	S24 E74	36	700	2.5									
82	03	17	18270	S24 E61	39	700	2.5									
82	03	19	18270	S24 E35	39	600	2.0									
82	03	21	18270	S24 E07	41	500	1.5	23040	S24 E04	43	(B)	3				
82	03	22	18270	S24 W06	40	500	1.5									
82	03	23	18270	S23 W22	43	300	1.5									
82	03	24	18270	S23 W34	42	300	1.5									
82	03	25	18270	S23 W48	42	300	1.5									

HALE REGION 18273 CMP DATE 22.3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	19	18273	N05 E36	38	300	2.0		N07 E36				R	10	1	AXX
82	03	21	18273	N06 E09	39	100	1.0									

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18271 CMP DATE 22.6 RETURN OF REGION 18249 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	16	18271	N17 E80	30	500	1.5		N18 E75				H	40	1	HSX
82	03	17	18271	N17 E66	34	700	2.0		N18 E63				H	70	1	HSX
82	03	18	18271						N18 E51				R	50	1	HAX
82	03	19	18271	N17 E39	35	700	2.5		N19 E38				R	70	1	HSX
82	03	20	18271					23036	N18 E23	37	AP	4	H	50	1	HSX
82	03	21	18271	N17 E13	35	600	2.0	23036	N18 E11	36	(BP)	4	H	40	3	CSO
82	03	22	18271	N17 W00	34	600	2.0	23036	N19 W03	37	(BY)	4	H	60	6	CSO
82	03	23	18271	N17 W14	35	600	2.0	23036	N19 W17	38	(AP)	4	H	40	3	CSO
82	03	24	18271	N17 W27	35	400	2.0	23036	N19 W31	38	(AP)	4	H	40	1	HSX
82	03	25	18271	N17 W40	34	300	1.5		N19 W44				H	50	1	HAX
82	03	26	18271						N19 W60				B	30	1	HSX

HALE REGION 18272 CMP DATE 23.9 RETURN OF REGION 18224 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	17	18272	N03 E80	20	1500	3.0		N04 E78				H	390	1	HHX
82	03	18	18272						N03 E67				R	560	2	HKX
82	03	19	18272	N03 E56	18	3000	3.0		N04 E54				R	420	10	CAO
82	03	20	18272					23037	N02 E39	21	BP	5	H	480	16	CKO
82	03	21	18272	N03 E30	18	2800	2.5	23037	N03 E24	23	(BP)	5	H	420	8	CHO
82	03	22	18272	N03 E17	17	2000	2.5	23037	N03 E13	21	(BP)	5	H	350	8	CHO
82	03	23	18272	N03 E03	18	1800	2.5	23037	N03 W03	24	(AP)	5	H	440	3	CHO
82	03	24	18272	N03 W10	18	1700	2.5	23037	N03 W15	22	(AP)	5	H	390	5	CKO
82	03	25	18272	N03 W23	17	1700	2.5		N05 W30				H	350	6	CHO
82	03	26	18272						N03 W47				B	320	10	CSO
82	03	27	18272					23037	N03 W57	25	AP	5	H	390	1	HHX
82	03	28	18272	N03 W65	20	1000	2.0		N03 W71				H	390	1	HHX
82	03	29	18272	N03 W78	16	500	1.0		N03 W85				H	390	1	HH

HALE REGION 18274 CMP DATE 25.1 RETURN OF REGION 18225 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	19	18274	S14 E73	1	300	2.0		S13 E75				R	140	1	HSX
82	03	20	18274					23038	S13 E58	2	AP	4	H	100	1	HSX
82	03	21	18274	S14 E45	3	300	1.5	23038	S13 E45	2	(BP)	5	H	70	2	HSX
82	03	22	18274	S14 E33	1	300	1.5	23038	S13 E32	2	(BP)	4	H	60	2	HSX
82	03	23	18274	S14 E19	2	200	1.5	23038	S13 E19	2	(AP)	4	H	70	1	HSX
82	03	24	18274	S14 E06	2	200	1.5	23038	S13 E05	2	(AP)	4	H	100	1	HSX
82	03	25	18274	S14 W07	1	200	1.5		S12 W08				H	70	1	HSX
82	03	26	18274						S12 W21				B	40	1	HSX
82	03	27	18274					23038	S12 W34	2	AP	4	H	100	1	HSX
82	03	28	18274	S14 W47	2	200	1.5		S12 W47				H	90	1	HSX
82	03	29	18274	S14 W64	2	200	1.0		S12 W60				H	90	1	HSX
82	03	30	18274	S13 W74	2	200	1.0		S11 W72				B	40	1	HSX

HALE REGION 18275 CMP DATE 25.1 NEW, IN LOCATION OF REGION 18226

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	19	18275	N13 E80	354	800	2.5									
82	03	20	18275					23039	N14 E60		B	3	H	30	8	BXO
82	03	21	18275	N14 E47	1	1400	2.5	23039	N13 E45	2	(B)	4	H	120	10	CSO
82	03	22	18275	N14 E34	0	1700	2.5	23039	N14 E33	1	(B)	5	H	110	11	DSO
82	03	23	18275	N14 E20	1	1700	3.0	23039	N14 E19	2	(B)	4	H	110	3	DSO
82	03	24	18275	N14 E07	1	1500	3.0	23039	N13 E07		(B)	4	H	90	4	DSO
82	03	25	18275	N14 W07	1	1200	2.5		N15 W07				H	60	6	CSO
82	03	26	18275						N14 W22				B	30	7	CSO
82	03	27	18275					23039	N13 W36	4	AP	4	H	80	2	HSX
82	03	28	18275	N14 W46	1	1100	2.5		N12 W49				H	70	2	HSX
82	03	29	18275	N15 W65	3	1000	2.5		N12 W62				H	70	1	HSX
82	03	30	18275	N14 W72	0	1500	2.0		N14 W78				B	20	1	HSX

HALE REGION 18285 CMP DATE 25.4

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	28	18285	N07 W42	357	300	2.0		N07 W42				H	20	6	BXO
82	03	29	18285	N07 W59	357	300	2.0		N08 W54				H	10	1	HSX
82	03	30	18285	N07 W68	356	300	2.0		N08 W70				B		1	AXX

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18276 CMP DATE 26.2 RETURN OF REGION 18227 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	21	18276	S07 E64	344	600	2.0		23041	S07 E59	348	(B)	3				
82	03	21	18276	S07 E64	344	600	2.0		23042	S04 E66	341	(AF)	2				
82	03	22	18276	S07 E49	345	600	2.0		23044	S05 E46	348	(AP)	2	H	10	3	BXO
82	03	22	18276	S07 E49	345	600	2.0		23045	S10 E50	344	(B)	3	H	10	3	BXO
82	03	23	18276	S07 E35	346	600	2.0			S11 E38				R	10	1	AXX
82	03	24	18276	S07 E21	347	700	2.0			S06 E19				H		1	AXX
82	03	25	18276	S07 E09	345	700	2.0			S11 E18				H		3	BXO
82	03	26	18276							S12 W00				B		1	AXX
82	03	28	18276	S07 W32	347	700	2.0			S12 W40				H	110	1	HSX
82	03	29	18276	S07 W48	346	600	2.0			S12 W53				H	80	1	HSX
82	03	30	18276	S07 W59	347	1000	1.5			S12 W66				L	100	1	HSX
82	03	31	18276	S07 W63	338	500	1.0										

HALE REGION 18277 CMP DATE 26.9 RETURN OF REGION 18229 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	21	18277	S15 E78	330	300	1.0		23043	S14 E73	334	(AP)	2	H		1	AXX
82	03	22	18277	S14 E62	332	200	1.0		23043	S14 E63	331	(AP)	2	H		2	AXX
82	03	23	18277	S14 E48	333	200	1.0										
82	03	24	18277	S16 E34	334	200	1.0		23043	S16 E31	336	(B)	3	H	10	2	BXO
82	03	25	18277	S16 E18	336	200	1.0			S14 E17				H	20	6	BXO
82	03	26	18277							S15 E03				R	10	2	BXO
82	03	27	18277						23052	S12 W12	340	B	3	H	40	10	CAO
82	03	28	18277	S16 W22	337	500	2.5			S15 W23				H	30	16	BXO
82	03	29	18277	S16 W38	336	900	2.5			S15 W34				H	90	16	DAO
82	03	30	18277	S16 W48	336	1000	2.5			S14 W47				B	50	11	DSO
82	03	31	18277	S16 W63	338	1000	2.5		23055	S15 W61	335	(B)	4	H	30	3	DSO
82	04	1	18277	S16 W76	339	1000	1.5			S11 W79				B		1	AXX

HALE REGION 18294 CMP DATE 26.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	30	18294	S24 W50	338	100	2.0			S22 W56				M		1	AXX
82	03	31	18294	S24 W65	340	100	1.0			S23 W58				L		1	AXX

HALE REGION 18278 CMP DATE 28.2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	22	18278	N23 E75	319	1200	1.5										
82	03	23	18278	N22 E60	321	1200	2.5		23049	N21 E54	327	(AP)	3	H		2	BXO
82	03	24	18278	N21 E46	322	1300	2.0		23049	N18 E45	322	(B)	3	H	50	3	DSO
82	03	25	18278	N21 E33	321	1400	2.0			N20 E32				H	50	2	DSO
82	03	26	18278							N19 E15				B	10	2	BXO
82	03	28	18278	N22 W06	321	1400	2.0			N19 W05				H	10	4	BXO
82	03	29	18278	N21 W21	319	1300	2.5			N20 W11				B	10	10	BXO
82	03	30	18278	N20 W30	318	1100	2.5			N19 W23				B	20	2	CRO
82	03	31	18278	N20 W43	318	1000	2.5			N20 W37				H	10	4	BXO
82	04	1	18278	N21 W57	320	600	2.0			N20 W51				B	30	5	BXO
82	04	2	18278	N22 W70	319	400	1.0			N20 W67				H	90	4	DSO

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18279 CMP DATE 28.6 RETURN OF REGION 18242 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	22	18279	S14	E80	314	1000	2.5	23046	S12	E77	317	(AP)	3	H	250	5	CSO
82	03	23	18279	S13	E65	316	800	2.5	23046	S12	E63	318	(AP)	4	H	360	3	DAO
82	03	24	18279	S13	E51	317	1300	2.5	23046	S12	E54	313	(AP)	4	H	240	9	DKO
82	03	24	18279	S13	E51	317	1300	2.5	23050	S06	E60	307	X	2				
82	03	25	18279	S13	E38	316	1800	2.5		S12	E39				H	250	7	DHO
82	03	26	18279							S10	E22				B	60	14	DAI
82	03	27	18279						23046	S11	E09	319	B	4	H	140	23	DSO
82	03	28	18279	S13	W00	315	1800	2.5		S13	W03				H	120	22	CSO
82	03	29	18279	S14	W16	314	1800	3.0		S12	W15				H	120	32	DSO
82	03	30	18279	S14	W26	314	1600	2.5		S09	W28				B	50	8	CSO
82	03	31	18279	S14	W40	315	1700	2.5	23046	S11	W43	317	(B)	4	H	30	4	CSO
82	04	1	18279	S14	W54	317	2300	2.5		S11	W56				B	50	10	DRO
82	04	2	18279	S14	W67	316	2400	2.5	23046	S12	W70	319	(AP)	3	H	70	4	CSO
82	04	3	18279	S14	W80	313	1000	2.5	23046	S13	W76	312	(B)	3	B	120	1	HSX

HALE REGION 18286 CMP DATE 28.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	28	18286	N17	E03	312	200	1.0		N18	E02				H	20	8	BXO
82	03	29	18286	N17	W14	312	300	1.0		N19	W09				H	10	5	BXO
82	03	30	18286	N17	W23	311	300	1.0		N19	W23				B	20	2	CRO
82	03	31	18286	N17	W37	312	300	1.5		N20	W37				H	10	4	BXO
82	04	1	18286	N17	W50	313	400	1.5		N20	W51				B	30	5	BXO
82	04	2	18286	N17	W63	312	300	1.0	23057	N19	W64	313	(B)	4	H	90	4	DSO

HALE REGION 18280 CMP DATE 29.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	22	18280	N10	E84	310	500	3.0	23047	N10	E80	314	(AP)	3	H	450	3	ESO
82	03	23	18280	N10	E70	311	2800	3.0	23047	N12	E69	312	(D)	4	H	610	11	DKO
82	03	24	18280	N12	E60	308	3800	3.5	23047	N12	E56	311	(D)	5	H	560	13	EKC
82	03	25	18280	N12	E46	308	4000	3.5		N14	E45				H	1190	36	EKC
82	03	26	18280							N13	E26				B	1030	25	EKI
82	03	27	18280						23047	N12	E18	310	D	5	H	1210	31	EKI
82	03	28	18280	N12	E05	310	3800	3.5		N12	E05				H	1110	55	EKC
82	03	29	18280	N12	W12	310	3800	3.5		N12	W09				H	1080	49	EKC
82	03	30	18280	N12	W21	309	3800	3.5		N13	W22				B	800	24	EKI
82	03	31	18280	N12	W35	310	3800	3.5	23047	N12	W35	309	(D)	5	H	1010	17	EKI
82	04	1	18280	N12	W47	310	3700	3.5		N10	W50				R	1150	26	EKI
82	04	2	18280	N12	W61	310	3800	4.0	23047	N11	W63		(D)	5				
82	04	3	18280	N11	W75	308	2500	3.5	23047	N12	W75	311	(D)	4	B	500	3	CKO
82	04	4	18280	N11	W90	313	500	1.0	23047	N13	W88	310	B	3	H	120	1	HKX

HALE REGION 18284 CMP DATE 29.4 RETURN OF REGION 18237 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	25	18284	S06	E53	301	500	1.0		S06	E48				R	10	1	AXX
82	03	28	18284	S07	E12	303	300	1.0		S06	E13				H		2	AXX
82	03	29	18284	S07	W07	305	300	1.0		S09	W08				H	10	3	AXO
82	03	30	18284	S07	W16	304	400	1.0										
82	03	31	18284	S08	W30	305	300	1.0										
82	04	1	18284	S08	W43	306	400	1.0										
82	04	2	18284	S07	W55	304	300	1.0	23058	S06	W46	295	(AF)	2				
82	04	3	18284	S07	W72	305	100	1.0										

REGIONS OF SOLAR ACTIVITY

MARCH 1982

HALE REGION 18281 CMP DATE 29.7 NEW, IN LOCATION OF REGION 18239

				CALCIUM		PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	22	18281						23048	S17	E88	306	AF	2	H	250	5	CSO
82	03	23	18281	S17	E80	301	1500	3.0	23048	S17	E75	306	(AF)	4	H	160	1	HAX
82	03	24	18281	S17	E65	303	1200	2.5	23048	S17	E62	305	(AP)	4	H	40	2	HAX
82	03	25	18281	S17	E51	303	1800	2.5		S15	E54				H	130	4	CAO
82	03	26	18281							S14	E37				B	80	6	DAO
82	03	27	18281						23048	S17	E27	301	X	4	H	200	19	EAO
82	03	28	18281	S17	E15	300	1500	2.5		S16	E16				H	240	19	EAO
82	03	29	18281	S17	W03	301	1400	2.5		S13	W02				B	280	30	FSO
82	03	30	18281	S17	W11	299	1200	2.5		S14	W08				B	110	10	DSO
82	03	31	18281	S17	W24	299	1200	2.5	23048	S17	W22	296	(B)	4	H	50	3	DAO
82	04	1	18281	S17	W36	299	1600	2.5		S13	W38				B	60	1	HSX
82	04	2	18281	S17	W49	298	1500	2.0	23048	S16	W51	300	(BF)	4	H	100	1	HSX
82	04	3	18281	S17	W64	297	1000	2.5	23048	S16	W64	300	(BP)	3	B	120	1	HSX
82	04	4	18281	S16	W76	299	1000	2.0	23048	S16	W77	299	(AP)	2	H	70	1	HAX

HALE REGION 18282 CMP DATE 30.7 RETURN OF REGION 18240 ROTATION 2

				CALCIUM		PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	24	18282	N16	E78	290	800	1.5										
82	03	25	18282	N15	E64	290	3500	2.0										
82	03	28	18282	N16	E27	288	2800	2.0										
82	03	29	18282	N15	E10	288	2800	2.0		N11	E15				M		1	AXX
82	03	30	18282	N15	E01	287	2800	2.0		N18	E04				L		1	AXX
82	03	31	18282	N16	W10	285	2800	2.0										
82	04	1	18282	N17	W23	286	2500	2.0										
82	04	2	18282	N17	W36	285	2200	2.0										
82	04	3	18282	N17	W50	283	2300	2.0										
82	04	4	18282	N17	W61	284	2100	1.5										
82	04	5	18282	N18	W74	283	600	1.0		N18	W64				M	50	1	HSX

HALE REGION 18283 CMP DATE 31.4 RETURN OF REGION 18241 ROTATION 2

				CALCIUM		PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	24	18283	S20	E85	283	500	1.5	23051	S20	E85	282	X	2	R	30	1	HSX
82	03	25	18283	S20	E78	276	2500	2.5		S19	E78				H	80	9	DSO
82	03	26	18283							S18	E60				B	120	17	DAO
82	03	27	18283						23051	S21	E48	280	BP	4	H	120	20	EAI
82	03	28	18283	S22	E37	278	2000	2.5		S19	E38				H	90	13	DAO
82	03	29	18283	S23	E20	278	2000	2.5		S21	E22				H	50	13	CRO
82	03	30	18283	S23	E10	278	1700	2.5		S20	E08				B	40	4	CSO
82	03	31	18283	S23	W03	278	2300	3.0	23051	S21	W05	279	(AP)	3	H	20	3	CRO
82	04	1	18283	S23	W12	275	1800	2.5		S19	W17				B		1	AXX
82	04	2	18283	S23	W25	274	1700	2.5	23051	S22	W31	280	(AP)	2	R	10	3	BXO
82	04	3	18283	S23	W43	276	1700	2.5	23061	S18	W39	275	(B)	3	B	10	1	AXX
82	04	4	18283	S23	W55	278	1200	2.0										
82	04	5	18283	S23	W69	278	700	2.0										

HALE REGION 18287 CMP DATE 31.6 RETURN OF REGION 18243 ROTATION 3

				CALCIUM		PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	26	18287							S12	E65				B	10	1	HRX
82	03	27	18287						23053	S16	E54	274	AP	4	H	60	1	HSX
82	03	28	18287	S10	E41	274	400	1.5		S14	E42				H	30	1	HAX
82	03	29	18287	S10	E24	274	400	1.5		S15	E29				H	40	1	HAX
82	03	30	18287	S10	E14	274	400	1.5		S14	E15				B	30	1	HSX
82	03	31	18287	S10	W00	275	400	1.5	23053	S07	E02	272	(AP)	3				
82	04	1	18287	S10	W14	277	300	1.5		S12	W16				R	10	1	AXX
82	04	2	18287	S09	W27	276	400	1.0	23053	S11	W22	271	(AP)	2	H		1	AXX
82	04	3	18287	S10	W40	273	400	1.0		S12	W40				M	10	1	AXX
82	04	4	18287	S09	W53	276	300	1.0										
82	04	5	18287	S10	W65	274	200	1.0										

NOTE: No solar magnetograms were made at Kitt Peak National Observatory on March 1, 2, 8, 11-15, 18, 26, and 27, 1982.

No Mt. Wilson sunspot data were available for March 1, 2, 10, 11, 14-19, 25, 26, and 28-30, 1982.

CONTIGUOUS PLAGES FOR MARCH 1982: 18247/18257
10254/18256
18283/18288

DAILY CALCIUM PLAGE INDEX

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	3	1	*	82	3	11	*	82	3	21	31.5
82	3	2	*	82	3	12	*	82	3	22	23.8
82	3	3	58.1	82	3	13	*	82	3	23	22.0
82	3	4	63.1	82	3	14	*	82	3	24	24.1
82	3	5	64.6	82	3	15	*	82	3	25	30.9
82	3	6	65.0	82	3	16	47.6	82	3	26	*
82	3	7	56.8	82	3	17	49.1	82	3	27	*
82	3	8	*	82	3	18	*	82	3	28	40.9
82	3	9	48.1	82	3	19	42.4	82	3	29	42.4
82	3	10	41.1	82	3	20	*	82	3	30	40.9
								82	3	31	40.8

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0238	0300	0240	1-	3				2				0242	No data
02	1601	1650	1612	1-	3				1		2		NF	
02	1845	1900	1848	1	3						4		NF	
02	2028	2100	2036	1	3						5		NF	
03	0257	0319	0301	1-	1				1				0258	18238
03	0336	0512	0400	2+	3			1	1		1		0336	18241
03	0854	0922	0900	1-	3	1			1	1			NF	
03	1130	1155	1138	1-	3	1			1	1			*	
03	1405	1440	1421	1	3						3		NF	
03	1640	1735	1644	1-	5				1		16		1639	18241
04	0056	0130	0100	1-	3				2		2		0057E	18241
04	0145	0303	0156	1	3	2			1		3		*	
04	0557	0654	0611	1-	1				1				0557	18243
04	0602	0702	0613	1-	3				2		2		0600	18243
04	1555	1647	1605	2+	3						3		1556	18242
04	1647	1715	1652	1	3						4		1648	18241
04	2052	2130	2100	1	3						3		*	
04	2213	2256	2222	1-	3				1		4		2219E	18241
05	0142	0538	0251	2+	3				2		1		0142	18241
05	0202	0455	0252	3+	3	1			1		3		0204E	18240
05	0242	0330	0250	2	3	1					4		0240	18244
05	0643	0716	0650	1-	3				2		1		0642E	18240
05	1210	1250	1220	1	5	3			2	1	1		*	
05	1640	1645D	1645	1-	1				1		1		1641	18237
05	1709	1800	1712	1-	3				1		1		1709	18241
05	1813	1820D	1820	1-	3				1		1		*	
05	1825	1845	1830	1-	3				1		9		1825E	18241
05	1942	2013	1956	1-	5	1			2		10		1938	18241
05	1951	2010	1957	1-	3						3		1946	18241
05	2051	2108	2100	1-	3				1		4		2053	18241
05	2111	2142D	2117	1-	3				1		4		*	
06	0146	0318	0207	1-	3				1		1		0138	18244
06	0510	0607D	0517	1	5				2		4		0514E	18244
06	0644E	0803D	0655	2	5	1				1	5		0646E	18244
06	0802	0820	0808	1-	3	1			1	1	1		0805	18241
06	0948	1010	0955	1-	3				1	1			0945	18244
06	1109	1126	1113	1-	3				1	1			*	
06	1133	1211	1138	1-	3			2	1	1			*	
07	0246	0750	0315	3+	3	1		1	2		1		0249	18240
07	0303	0400	0314	2	3	2					4		0308E	18240
07	1354	1410	1356	1-	5	1		2	1	1	3		*	
07	1417	1445	1428	1-	5	1		1	1	1	2		1420E	18240
08	0737	0922	0810	1-	1				1				*	
08	1303	1510	1323	2	5	1		2	1	1	2		1305	No data
08	1939	2006D	1948	1-	5	2			2		11		*	
08	2006E	2136	2027	2+	5				2		11		*	
09	0307	0343	0313	1-	1				1				0306	18248
09	1140	1223	1153	1-	1				1				*	
09	1604	1900	1644	3	3	1					3		NF	
09	2123	0000	2200	3	3	1					3		*	
09	2314	0015	2334	1-	3				1		1		NF	
10	0256	0526	0318	3	5	2			1		4		0259	18258
10	1215	1400	1243	1-	1				1				1213	18257
10	1845	1945	1853	1-	5	1			1		10		1845	18257
11	0317	0340	0327	1-	3	1			1		1		0318E	No data
11	1747	1830	1807	1+	3						2		*	
11	2326	0014	2344	1-	3				2				NF	
12	0435	0511	0454	1-	3				2				*	
13	1246	1315	1252	1	3			1			2		NF	
13	1253	1340	1300	2	5	3		1		1	2		1255E	No data
13	2302	2327	2310	1-	1				1				2312E	No data
14	0234	0314	0249	1-	1				1				0233	No data
14	1055	1135	1101	1+	3	1			1	1	1		*	
14	1230	1345	1240	1-	5	1		2	1	1	2		*	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LE-SPA	SES	SFD	KNOWN FLARE	HALE REGION
15	0649	0705	0655	1-	3				1	1			0649	No data
15	0720	0746	0729	1	1			1					0725	No data
15	0848	0910	0853	1+	1						1		0847	No data
15	1115	1230	1135	1-	3				1		2		NF	
15	2325	0224	0004	1	3	1			2		1		2324E	No data
15	2342	0049	2355	1-	3	1			1		3		2337	No data
16	0810	0829	0816	1-	1				1				0810	18264
17	0154	0235	0156	1-	3	1			2		1		0153	18267
17	0238	0345	0246	1	3	2			1		1		0242	18264
17	0957	1020	1000	2	3				1	1	1		0957	18268
17	1108	1155	1122	1+	5	3		3	2	1	2		1115	18264
17	1241	1300	1246	1+	5			2	1	1	2		1240	18264
17	1306	1320	1311	1-	3				2	1			*	
17	1425	1440	1428	1-	5	4		1	2	1	4		1424	18262
17	2156	2241	2206	1-	3				1		3		*	
18	0220	0255	0229	1-	3				1		1		0215	No data
18	0312	0341	0317	1-	3				2		1		NF	
18	0409	0519	0417	2+	5	2			2		5		0405	No data
18	0520	0624	0532	1-	3				1		1		0521	No data
18	0630	0714	0637	1-	1				1				0630	No data
18	0818	0830	0821	1-	3	1			1	1	1		0817E	No data
18	1046	1110	1052	1-	3				2	1	2		NF	
18	1136	1150	1138	1	3						2		*	
18	1232	1245	1235	1-	3	1				1	1		1230E	No data
18	1334	1345	1335	1-	3				2		1		1333E	No data
18	1357	1505	1405	1	5	1			2	1	7		NF	
18	1752	1815	1759	1	3						8		*	
18	2125	2232D	2142	2	5	3			1		12		*	
18	2232E	2322	2237	1-	3				1		3		*	
19	0417	0645	0503	3	3			1	2		1		NF	
19	0438	0525	0503	1+	3	2					4		0437E	18264
19	0813	0835	0819	1-	3			1	1	1	1		0807	18272
19	0919	0950	0928	1	5	1			2	1	2		0918	18267
19	1015	1037D	1037	1-	3				2	1	1		*	
19	1038	1045	1041	1-	3	1		1		1	1		*	
19	1109	1215	1125	1-	3			2	2	1	2		NF	
19	1255	1320	1259	1-	5	1		1	2	1	2		1253	18264
19	1309	1313D	1313	1-	3				2				1307	18272
19	1334	1355	1341	1-	5	1			2	1	1		NF	
19	1435	1455	1442	1-	5	1			2	1	2		1435	18264
19	1530	1650	1556	2+	5	2		2	1	1	13		1530	18264
19	2054	2200	2102	1	5	1			1		13		2057	18264
19	2118	2205	2121	1-	3				2				2116	18267
20	0336	0358	0344	1-	3				1		1		NF	
20	0407	0433	0417	1-	3				1		1		*	
20	0658	0715	0703	1	5			1	1	1	2		0658	No data
20	0726	0745	0732	1-	3	1				1			0730	No data
20	1407	1425	1412	1	5				1	1	3		NF	
20	1412	1500	1420	1-	3			1	2	1	2		NF	
21	0103	0140	0114	1-	3				1		1		0106	18264
21	0739	0909	0748	1-	5	1			1	1	1		NF	
21	0914	1002	0926	1-	3			1	1	1	1		NF	
21	1122	1230	1133	1-	3	1		1	2	1	2		*	
21	1535	1630	1548	1-	5				2	1	5		1536	18262
21	1755	1804D	1804	1-	5				2		13		1755	18271
21	1901	2045	1910	1-	5	1			2		13		1900	18264
21	2256	2316	2300	1-	1				1				2259	18267
22	0006	0119	0013	1	1				1				0006	18264
22	0151	0232	0158	1-	1				1				0154	18272
22	0356	0510	0412	1	1				1				NF	
22	0557	0640D	0607	1	3	2			1	1			0555	18271
22	0640E	0716	0647	1-	3				1	1	1		0651E	18267
22	0825	0855	0831	1	5			1	1	1	2		0825	18264
22	0908	0935	0918	1-	3	1				1	1		0908	18268
22	0946	0955	0950	1-	3	1				1	1		*	
22	1402	1404D	1404	1-	3	1				1	1		1356	18271
22	1415	1430	1420	1-	3				2	1	3		NF	
22	1625	1650	1629	1+	5	1		1	1	1	8		1625	18280
22	1800	1816	1808	1-	3						4		NF	
22	1831	1900	1838	1	3						7		1833	18268
22	2016	2045	2022	1-	3						4		NF	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
23	0141	0207	0147	1-	1				1				0140E	18267
23	0212	0230	0220	1-	1				1				0210	18266
23	0516	0654	0529	2+	3	1			1	1			0518	18280
23	0715	0740	0722	1-	3				1	1	1		*	
23	0856	0920	0902	1+	3				1	1	1		*	
23	1300	1315	1307	1-	3	1				1	1		1259	18280
23	1845	1915	1853	1	3						4		*	
23	1940	2000	1944	1-	3						3		NF	
23	2102	2141	2111	1-	3				1		2		NF	
24	0020	0144	0030	1-	3				2		2		NF	
24	0359	0441	0406	1-	3				2		1		*	
24	0456	0516	0501	1-	3				1		1		NF	
24	1045	1125	1051	1	1			1					1040E	18278
24	1249	1305	1255	1-	3	1		1		1	1		NF	
24	1405	1440	1412	1	3	1		1		1	3		NF	
24	1542	1600	1546	1-	3	1		1		1	4		NF	
24	1623	1645	1628	1	3			1			4		1626	18280
24	1703	1730	1713	1	3						14		NF	
24	1732	1800	1745	2	3	1					12		NF	
24	1917	1940	1924	1-	3						3		NF	
24	2000	2100	2008	2	5	2			1		14		NF	
24	2142	2324	2206	1	5	3			1		12		*	
25	0140	0302D	0146	1	5	3			2		5		0143E	18282
25	0302E	0349	0310	1-	3	1			1		3		*	
25	0607	0820	0628	2	5	1		1	1	1	4		*	
25	1423	1440	1428	1-	5			3		1	10		NF	
25	1626	1705	1634	3	5	4		3		1	13		NF	
25	2216	2230	2220	1	3						3		*	
25	2309	0023	2323	1-	3	1			2		2		*	
26	0033	0137	0040	1-	3				2				NF	
26	0208	0317	0217	1-	3				2				0209E	No data
26	0346	0500	0354	1-	3				2		3		0350E	No data
26	0548	0708	0554	3	5	3		3	2	1	5		0554E	No data
26	0708	0838	0718	1	5	1			1	1	2		0706E	No data
26	1458	1520	1503	1+	5	2		3		1	12		1447	No data
26	1645	1715	1650	1	3			1			2		*	
26	2255	2356	2307	1-	3				1		2		*	
27	0212	0356	0230	1	5	2			2		5		0212	No data
27	0913	0930	0919	1	3				1	1	1		0913	No data
27	1010	1025	1015	1+	3				1	1	1		1010	No data
27	1412	1500	1423	3+	5	4		3		1	14		1410	No data
27	1516	1530	1519	1-	5	2		1			13		NF	
27	1832	1845	1838	1-	3						6		NF	
28	0305	0351	0311	1-	5	1			2		4		0304	18279
28	0434	0547	0443	1+	3	1			2		1		0432	18283
28	0630	0920	0713	2+	1				1				0625	18280
28	0647	0710	0654	1	3	2		1	1	1	1		0653E	18280
28	0926	0935	0929	1-	3	1				1	1		0926	18280
28	1004	1030	1009	2+	5	4		3	1	1	2		1005	18283
28	1321	1415	1340	1-	3	1							NF	
28	1340	1346	1342	1	3	2		1			1		1337	18280
28	2354	0019	0004	1-	1				1				2358	18279
29	0116	0136	0118	1-	1			1					0114	18287
29	0143	0204	0147	1-	1				1				0140	18280
29	0332	0431	0400	1	1	1							0318	18280
29	0354	0534	0421	1-	1				1				0355	18288
29	0805	0854	0814	1-	3				1	1	1		0804	18279
29	0907	1012	0916	2	5	4		3	1	1	1		0908E	18280
29	1459	1520	1500	1	3						7		NF	
29	1815	1854	1821	1	3						7		1809	18277
29	1853	1925	1856	1-	5				1		12		*	
29	1945	2012	1948	1-	5				1		6		*	
29	2108	2136	2114	1-	5				1		7		*	
30	0232	0352	0244	2+	5	2			2		6		0231	18280
30	0521	0834D	0542	3+	5	5		3	2	1	6		0521	18280
30	0705	0750	0718	1+	5	2		2		1	4		0701	18280
30	0834E	0922	0843	1-	5	2		3	1	1	3		*	
30	1141	1230	1152	1	5	1		2		1	3		*	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
30	1418	1627	1510	2+	5	4		3		1	8		1418	18280
30	1602	1625	1607	1-	5	1		3		1	7		1602	18277
30	1641	1730	1648	1-	5			1		1	7		1644	18282
30	1832	1921	1847	1	3	1			1		6		*	
30	2059	2133	2103	1-	3				1		4		*	
30	2338	0112	2348	1	5	3			2		5		2340E	18280
31	0042E	0107	0046	1-	3	1			1		1		0042	18280
31	0121	0228E	0136	1	3	1			2		3		0124	18280
31	0228E	0311D	0232	1	3				1		2		0228E	18280
31	0311E	0335	0314	1-	3				1		1		0313E	18280
31	0406	0511	0426	1+	3	2			1		2		0407	18280
31	0532	0555	0540	1+	5	1		2	1	1	6		0533	18280
31	0614E	0742	0624	3+	5	3		3	1	1	6		0612E	18280
31	0832	1004	0840	3+	5	4		2	1	1	4		0831	18280
31	1016	1058	1028	1-	3	2			1	1	1		*	
31	1106	1120	1110	1-	3	1				1	1		*	
31	1128	1140	1132	1-	3					1	1		*	
31	1338	1355	1346	1-	3			1		1	1		NF	
31	1407	1415	1410	1-	3					1	2		*	
31	1433	1455	1442	1+	5					1	7		NF	
31	1509	1527	1514	1-	5	1				1	5		1511	18290
31	1551	1600	1554	1-	3					1	1		1551	18277
31	1859	1920	1902	1-	3						7		*	
31	1937	2009	1950	1-	5	1			1		7		*	
31	2108	2207	2124	1-	5	1			1		5		*	
31	2222	0040	2230	2+	5				1		12		*	
31	2315	2330	2316	1	3						3		*	

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
18237					1																										
18238			1																												
18240					2		3																								
18241			2	3	6	1																									
18242				1																											
18243				2																											
18244					1	4																									
18248								1																							
18257									2																						
18258									1																						
18262																	1				1										
18264																1	3		5		2	2									
18266																							1								
18267																	1		2		1	1	1								
18268																	1					2									
18271																					1	2									
18272																			2			1									
18277																													1	1	1
18278																								1							
18279																												2	1		
18280																						1	2	1				4	3	5	8
18282																									1					1	
18283																												2			
18287																													1		
18288																													1		
18290																															1
NO FLARE		3	2						2		1				1			3	3	3	2	4	2	9	2	1	2	1	1		2
NO FLARE PATROL			1	2	3	2	1	3	2		1	1		2			2	4	2	1	1	1	3	2	4	2			3	4	9
NO DATA	1							1			1		3	1	5			7		4						5	4				
EVENT TOTALS	1	3	6	8	13	7	4	4	5	3	3	1	3	3	6	1	8	14	14	8	8	14	8	13	7	8	6	9	11	11	21

OBSERVATORIES REPORTING FOR MARCH 1982:

Darmstadt, GFR (DA)	SWF	Lake Hiawatha, New Jersey, USA (A32)	SES
Edenvale, South Africa (A52)	SES	Latrobe, Pennsylvania, USA (A19)	SES
Eureka, Montana, USA (A55)	SES	Louisville, Kentucky, USA (A26)	SES
Farsta, Sweden (FS)	SES	Mayfield Village, Ohio, USA (A28)	SES
Frenchtown, Montana, USA (A56)	SES	Maui, Hawaii, USA (MI)	SWF
Glenorchy, Tasmania, Australia (GN)	SES, SWF	Missoula, Montana, USA (A31)	SES, SWF
Hiraiso, Japan (HI)	SWF	Pansak Ves, Czechoslovakia (PU)	SEA, SWF
Hobart, Tasmania, Australia (TA)	SEA	Portage, Michigan, USA (A51)	SES
Hobart, Tasmania, Australia (A43)	SES	Roswell, New Mexico, USA (RW)	SES
Houston, Texas, USA (A50)	SES	St. Cloud, Minnesota, USA (SC)	SES
Huancayo, Peru (HU)	SWF	Sao Paulo, Brasil (UM)	SES, SPA
Inubo, Japan (IN)	SPA	Trenton, New Jersey, USA (NJ)	SES
Juliusruh, GDR (JU)	SWF	Upice, Czechoslovakia (UI)	SEA
Kasugai, Japan (KA)	SPA	Valley Cottage, New York, USA	SES
Kuhlungsborn, GDR (KU)	SEA, SPA		

NF No Flare
* No Flare Patrol
Observations are not necessarily continuous for each reporting station.

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01			WEIS				0703.3	0705.5	2				IIIGG
	0639	1628	WEIS				0709	1628	2				IS,DC
			WEIS				0718	1441	1				IIIN
			WEIS				0923.4	0924.1	3				IIIG
			WEIS				1040.1	1042.1	3				IIIG/V
			SGMR				1339.5	1400.0	1				V
	1346	2400	HARV				1346	2400	2				IC
			WEIS				1355.7	1356.3	2				IIIG
			HARV				1359	1400	2				IIIG
			WEIS				1359.1	1400.3	3				IIIG
			HARV	1437	2400	1							IN
			WEIS				1453.1	1453.6	2				IIIG
			HARV	1513		1	1513	1515	1				IIIG
			WEIS				1612.9	1613.4	2				IIIG
			HARV				1613		3	1613		2	IIIG
			HARV				1637	2357	1	1637		1	IIIN
			HARV	1703	1705	1	1702	1705	2				IIIG
			HARV	1800		1	1800		2				IIIG
			LEAR				2304.0	0630.0	1				CONT
02			LEAR				0302.0	0302.4	1				III
			LEAR				0546.4	0548.3	1				III
			LEAR				0607.8	0608.0	1				III
			WEIS				0711	1628	1				IN
			LEAR				0732.4	0732.7	1				III
	0639	1200	WEIS				0733.2	0732.6	2				IIIG
			WEIS				0743.7	0744.0	1				IIIG
			LEAR				0743.8	0744.1	1				III
			LEAR				0808.6	0809.0	1				III
			WEIS				0808.7	0808.8	2				IIIG
			WEIS				0829.3	0829.4	2				IIIB
			LEAR				0829.3	0829.6	1				III
			WEIS				0903.6	0904.3	2				IIIG
			LEAR				0903.7	0904.3	1				III
			WEIS				0928.6	0928.8	1				IIIB
			WEIS				0940.8	0940.9	1				IIIB
			WEIS				1008.1	1008.2	1				IIIB
			WEIS				1030.9	1031.2	2				IIIG
	1205	1630	WEIS				1212.5	1213.9	3				IIIG
			WEIS				1242.6	1242.8	3				IIIG
			WEIS				1246.6	1246.9	1				IIIB
			WEIS				1250.6	1250.9	1				IIIG
			WEIS				1255.7	1257.3	2				IIIG
			WEIS				1301.1	1301.4	1				IIIB
			WEIS				1307.7	1307.9	1				IIIB
			WEIS				1337.2	1337.6	1				IIIG
	1359	2400	HARV				1359	1620	1				IN
			HARV	1509	2329	1							INW
			WEIS				1509.4	1509.6	1				IIIB
			HARV	1513	1514	2	1513	1514	2				IIIG
			WEIS				1513.3	1513.6	3				IIIG
			HARV				1551	2354	2				IIIN
			WEIS				1551.1	1551.6	2				IIIG
			HARV				1620	1740	2				I
			HARV				1740	2400	1				IN
			HARV	1845	1849	2	1845	1846	2				IIIGG
			HARV				1849	1902	2				II
			HARV				1950	1951	2				IIIG
			HARV				2055	2100	2	2056	2100	1	IIIGG
03			LEAR				0654.7	0655.3	1				III
	0636	1213	WEIS				0715	0815	1				IN
			LEAR				0820.2	0820.4	1				III
			WEIS				0820.3	0820.4	2				IIIB
			WEIS				0832.6	0833.1	1				IIIG
			LEAR				0832.9	0833.3	1				III
			LEAR				0916.2	0916.6	1				III
			WEIS				1104.7	1104.9	1				IIIB
			WEIS				1158.0	1159.0	3				IIIG
	1345	2400	HARV				1349	2400	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			HARV				1349	1356	2				IIIGG
	1319	1632	WEIS				1349.0	1352.1	2				IIIG
			WEIS				1354.2	1354.5	1				IIIG
			HARV	1404	2400	1							INW
			HARV	1406	1408	1	1406	1408	3				IIIGG,V
			WEIS				1406.1	1408.7	3				IIIGG/V
			WEIS				1434.2	1434.5	1				IIIB
			HARV	1439	1440	1	1439	1440	3				IIIG,V
			WEIS				1439.4	1440.5	3				IIIG
			WEIS				1445.8	1446.5	2				IIIG
			WEIS				1448.3	1450.4	2				IIIGG
			HARV	1449		1	1446	1450	2				IIIGG
			HARV				1526	2241	2	1751	1909	2	IIIN
			WEIS				1538.1	1538.4	1				IIIG
			WEIS				1540.3	1540.5	1				IIIG
			WEIS				1605.4	1605.6	1				IIIB
			WEIS				1612.6	1614.1	1				IIIG
			WEIS				1620.0	1620.7	2				IIIG
			HARV	1638	1644	2	1638	1644	3	1640	1642	2	IIIGG,V
			SGMR				1639.9	1641.8	2				III
			HARV				1648	1705	3				II
			SGMR				1832.8	1833.5	1				III
			PALE				1832.9	1833.3	2				III
			HARV				1833		2	1833		2	IIIG,V
			HARV	1845		1	1845	1846	2	1845		1	IIIG
			HARV	1920		2	1917	1920	2				IIIG
			PALE				1959.6	2002.5	2				V
			HARV	2000	2003	1	1959	2004	3	1959	2002	2	IIIGG,V
			SGMR				2000.2	2001.4	1				III
			PALE				2324.0	2326.3	2				V
			HARV				2342	2343	2				IIIG
			LEAR				2342.4	2344.1	2				III
04			LEAR				0053.8	0104.5	3				V
			PALE				0055.7	0059.6	2				V
			LEAR				0107.7	0119.2	1				II
			LEAR				0211.2	0213.3	2				III
			PALE				0211.5	0213.2	1				G
			LEAR				0510.8	0519.8	1				III
			LEAR				0533.2	0535.5	1				III
			LEAR				0558.1	0602.9	2				III
			LEAR				0608.5	0609.0	1				III
			LEAR				0623.3	0631.9	1				III
	0635	1210	WEIS				0653.9	0654.1	1				IIIG
			WEIS				0950.3	0950.5	2				IIIB
			WEIS				1056.7	1056.9	2				IIIG
			WEIS				1142.2	1142.5	2				DC
			HARV				1506	1507	2				IIG
	1221	1633	WEIS				1506.3	1506.6	2				IIIG
			HARV				1517	2241	1				INW
			WEIS				1603.8	1603.8	1				IIIB
	1345	2400	HARV	1607	2325	2	1429	2343	2				IIN
			WEIS				1607.1	1607.2	1				IIIG
			HARV	1904		1	1904	1907	2	1904	1907	1	IIIGG
			HARV	2009	2011	1	2008	2011	2	2009	2011	1	IIIGG,U
			HARV	2114	2115	1	2114	2115	2	2115		1	IIIG,U
			LEAR				2342.4	2344.1	2				III
05			LEAR				0107.8	0108.3	1				III
			LEAR				0256.3	0256.8	1				III
			LEAR				0306.3	0313.5	1				III
			LEAR				0348.0	1032.0	1				CONT
	1330	2355	HARV				1348	1805	1				IN
	0633	1635	WEIS				1541.1	1541.2	1				IIIB
			HARV				1549	1550	1				IIIGW
			HARV	1607	2355	1							INW
			HARV				1759		2	1759		2	IIIG
			HARV				1805	1941	1				I
			HARV				1941	2131	1				IN
			HARV				2010		2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			HARV				2026		1				IIIB
			HARV				2113	2114	3				IIIGG,U
			HARV				2131	2355	1				I
			HARV				2145	2147	2				IIIG
06	0630	1006	WEIS				0942.2	0942.3	1				IIIG
	1009	1637	WEIS				1132.8	1132.9	1				IIIB
			WEIS				1140.0	1140.2	2				IIIG
			WEIS				1152.9	1153.1	1				IIIB
			WEIS				1248.8	1249.7	3				IIIG
	1330	2400	HARV				1346	2320	1				IN
			HARV				1348	1401	2				IIIGG
			WEIS				1348.2	1348.3	1				IIIB
			HARV	1349	2350	1							INW
			WEIS				1358.3	1359.9	2				IIIG
			HARV				1419	1420	2				IIIG
			WEIS				1419.4	1419.7	2				IIIG
			WEIS				1430.7	1430.8	1				IIIB
			HARV				1450	2350	2				IIIN
			WEIS				1514.5	1514.8	1				IIIG
			WEIS				1556.6	1557.9	2				IIIG
			HARV				1557	1601	2				IIIGG
			WEIS				1559.5	1559.7	1				IIIG
			WEIS				1601.1	1601.2	2				IIIB
			HARV	1757	1758	2	1757	1758	2	1757	1758	1	IIIGG
			HARV	2115	2118	2	2115	2117	2				IIIGG
07			PALE				0308.6	0319.7	3				II
	0628	1637	WEIS				0631	1635	1				IS
			WEIS				0828.6	0829.2	2				IIIG
			LEAR				0828.9	0829.3	1				III
	1330	2400	HARV				1341	2012	1				I
			HARV	1344	2207	1							INW
			WEIS				1351.9	1354.5	3				IIIGG,RS
			HARV	1352	1354	2	1352	1354	3				IIIGG,V
			SGMR				1353.3	1354.1	1				V
			WEIS				1355.8	1359.6	3				II HARM
			HARV				1356	1359	3				II
			HARV				1448	2349	2				IIIN
			WEIS				1519.3	1527.8	2				IIIGG
			HARV				1521	1528	2				IIIGG
			HARV				1541	1543	2				IIIG
			WEIS				1541.8	1542.8	3				IIIG
			HARV				1548	1553	3				IIIGG
			WEIS				1549.0	1553.3	3				IIIGG
			HARV				1656	1657	2				IIIG
			HARV				1828		3	1828		1	IIIG
			HARV				1914	1915	2				IIIG,U
			HARV	1958	2011	2	1958	2013	2				IIIGG
			HARV				2012	2400	1				IN
			HARV				2112	2113	2				IIIG
			HARV				2121	2125	2				IIIG
			HARV	2245	2246	1	2245	2246	1				IIIG
			HARV	2255	2257	2							IIIG
08			LEAR				0137.4	0141.5	3				III
			LEAR				0212.0	0212.4	1				III
			LEAR				0436.9	0441.0	1				III
	0627	0950	WEIS				0630	1634	1				IN
	0954	1640	WEIS				0730.7	0730.9	1				IIIG
			WEIS				0839.2	0839.3	2				IIIB
	1330	2345	HARV				1339		2				IIIB
			HARV	1341	2034	1							INW
			HARV				1341	2309	1				IN
			HARV				1407	1410	1				IIIGW
			HARV				1420	1424	1				IIIGW
			HARV				1429		2				IIIB
			HARV	1543		1	1538	1548	2				IIIGG
			HARV				1658		2				IIIG
			HARV				1817	1818	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
08			HARV				1822		2	1822		2	IIIG
			HARV				1844	1845	2				IIIG
			HARV				1910	1911	2	1911		1	IIIG
			HARV				2027	2028	2	2027	2028	1	IIIG
			HARV				2106	2107	2				IIIG
			HARV				2344	2345	2				IIIG
09			LEAR				0127.4	0128.0	1				III
			LEAR				0225.3	0226.4	1				III
			LEAR				0304.8	0320.0	3				V
			PALE				0306.2	0309.1	2				G
			LEAR				0341.7	0342.3	1				III
			LEAR				0412.0	0412.4	1				III
			LEAR				0434.9	0440.8	1				III
			LEAR				0533.9	0534.3	1				III
			LEAR				0649.3	0651.3	1				III
			LEAR				0721.0	0728.6	1				III
	0624	0807	WEIS				0721.0	0728.8	2				IIIGG
			WEIS				0738.7	0739.8	2				IIIG
			LEAR				0739.8	0750.9	1				G
			WEIS				0743.2	0745.0	1				IIIG
			WEIS				0747.1	0750.5	2				IIIGG,RS
			WEIS				0818.3	0818.6	2				DCIM
	0829	1641	WEIS				0928.8	0928.9	2				IIIB
			WEIS				1049.7	1049.9	1				DCIM
	1331	2350	HARV				1350	2231	2				IIIN
			HARV	1351	2325	1	1418	1629	1				INW
			HARV				1524	1532	1				IIIGG,W
			HARV				1629	2106	1				I
			HARV				2306	2307	1				IIIG
			LEAR				2344.5	2345.5	1				III
			LEAR				2357.0	2357.6	1				III
10			LEAR				0300.9	0308.2	1				G
			LEAR				0317.5	0346.5	1				CONT
			LEAR				0803.0	0806.5	2				III
	0623	0943	WEIS				0803.1	0805.8	2				IIIGG
	0623	0943	WEIS				0818.3	0818.6	2				DCIM
			WEIS				0831.7	0832.9	1				IIIG
	0951	1642	WEIS				1205.5	1209.8	1				IIIG
			WEIS				1220.6	1223.3	3				IIIGG,RS
			WEIS				1228.7	1228.9	1				IIIG
			WEIS				1233.3	1237.4	1				IIIG
			WEIS				1244.1	1247.6	1				IIIGG
			WEIS				1254.4	1255.7	2				IIIG
			WEIS				1329.9	1333.6	3				IIIGG
	1330	2350	HARV				1331	2229	2				IIIN
			WEIS				1406.9	1407.1	2				IIIG
			HARV				1448	1452	2				IIIG
			WEIS				1448.0	1451.1	1				IIIG
			WEIS				1527.7	1530.4	3				IIIG
			HARV				1528	1530	2	1530		1	IIIGG
			WEIS				1622.7	1623.3	1				DCIM
			HARV				1623		2				IIIG
			HARV				1644	1649	2	1644	1649	1	IIIGG
			HARV				1658	1700	2				IIIG
			HARV				1821	1823	2	1821	1823	1	IIIGG
			PALE				1844.4	1850.0	3				IV
			HARV	1845	1846	2	1844	1851	3	1844	1849	2	IIIGG,V
			HARV				1850	1911	3	1855	1911	2	II
11			LEAR				0117.2	0117.6	1				III
			LEAR				0821.2	0825.2	1				III
	0620	1644	WEIS				0822.9	0823.7	1				IIIG
			LEAR				0831.5	0833.7	3				III
			WEIS				0831.6	0834.8	3				IIIGG
			WEIS				1000.9	1001.1	2				U
	1331	2350	HARV				1507	2248	1				INW
			HARV				1721	1722	2				IIIG
			HARV				1826	1828	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11			HARV				1853	1854	1				IIIG
			HARV				1857	2319	2	1857		2	IIIN
			HARV				1916	1917	2				IIIG,U
			HARV	2021	2022	1	2021	2022	1				IIIG
			HARV				2039	2047	2	2040	2044	1	IIIGG
			HARV				2247	2250	3	2248	2249	1	IIIGG
			PALE				2247.8	2250.1	2				V
			LEAR				2247.8	2249.3	1				III
			HARV	2334	2336	2	2334	2336	2				IIIG
12			LEAR				0158.7	0202.4	1				III
			LEAR				0314.8	0317.2	1				III
			LEAR				0335.1	0335.5	1				III
	0618	0900	WEIS				0708.4	0710.6	2				IIIG
			WEIS				0737.6	0742.3	2				IIIG
			WEIS				0743.7	0744.0	2				IIIG
			LEAR				0743.7	0744.0	1				III
			WEIS				0818.6	0819.9	2				DCIM
	0904	1646	WEIS				1140.6	1141.2	3				DCIM
			WEIS				1250.7	1251.1	1				IIIG
			WEIS				1334.4	1334.7	1				IIIG
			WEIS				1348.8	1349.0	2				IIIB
			HARV				1406	1407	2				IIIG
			HARV				1426	2230	2				IIN
	1330	2350	HARV				1443	2350	1				IN
			HARV				1446	1449					IIIGG,V
			WEIS				1446.3	1449.7	3				IIIGG/V
			HARV	1637		1							I
			HARV				1709	1710	2	1709	1710	1	IIIG
			HARV				1748		2				IIIG
			HARV	1833		2							IIIG
			HARV				1938		3	1938		2	IIIG
			PALE				1938.2	1938.4	1				III
			HARV	2034	2035	2							IIIB
			HARV	2220	2224	2							IIIG
13			LEAR				0244.0	0244.2	1				III
			WEIS				0855	0937	2				IN
	0616	1627	WEIS				1243.5	1244.7	2				IIIG
			WEIS	1254.6	1254.8	2							IIIG
	1331	2400	HARV				1338	1419	1				IN
			HARV	1401	1418	1							INW
			HARV				1414		1				IIIB
			HARV				1419	1433	2				I
			HARV				1433	2400	1				I
			HARV				1443	1444	1				IIIGW
			WEIS				1452.9	1453.7	3				IIIG,U
			HARV				1453		2				IIIG,U
			HARV				1547		1				IIIBW
			HARV	1600	1601	1	1600	1601	1				IIIGW
			HARV				1612		1				IIIBW
	1630	1648	WEIS										
14			LEAR				0104.2	0106.3	1				III
			LEAR				0544.8	0546.8	1				III
			LEAR				0627.8	0628.1	1				III
	0615	1649	WEIS				0627.8	0628.0	1				IIIB
			WEIS				0816.6	0816.7	1				IIIB
			WEIS				0916.4	0916.5	1				IIIB
			WEIS				1022.2	1022.4	1				IIIB
			WEIS				1043.5	1043.7	1				IIIB
			WEIS	1108.0	1108.6	2							DCIM
			WEIS				1111.3	1111.4	1				IIIB
			WEIS				1244.3	1244.7	2				IIIG
			WEIS				1258.6	1258.8	1				IIIB
			WEIS				1310.7	1310.9	2				U
			WEIS				1331.8	1333.9	1				IIIG
			WEIS				1449.9	1450.1	1				IIIB
	1431	2400	HARV				1628	2338	2	1736	1920	2	IIIN
			WEIS				1628.6	1628.7	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			PALE				1926.8	1927.8	2				G
			HARV				1927	1928	3	1927	1928	2	IIIGG
			HARV				2023		2	2023		2	IIIG
			PALE				2023.0	2023.4	1				III
			HARV				2108	2137	2				I
			HARV				2254	2257	2				IIIG
			LEAR				2337.9	2342.5	1				III
15			LEAR				0143.8	0144.0	1				III
			LEAR				0242.7	0243.0	1				III
			LEAR				0350.3	0350.5	1				III
			LEAR				0437.4	0438.1	2				III
	0613	0722	WEIS				0614	1651	2				IN
	0755	1204	WEIS				0644.3	0644.9	2				IIIG
			LEAR				0644.4	0656.3	1				G
	1219	1530	WEIS				0655.4	0658.1	2				IIIG
			LEAR				0658.0	0659.1	2				III
			LEAR				0712.8	0713.0	1				III
			LEAR				0819.9	0820.7	1				III
	1534	1651	WEIS				0924.1	0924.6	1				IIIG
			LEAR				0924.2	0924.6	1				III
			WEIS				1033.2	1033.4	1				IIIG
			WEIS				1108.7	1108.8	1				IIIB
			WEIS				1113.7	1113.9	1				IIIB
			WEIS				1114.7	1115.0	1				IIIB
			WEIS				1116.7	1118.6	3				IIIG
			WEIS				1328.7	1418.3	2				IIIS
	1331	2400	HARV				1332	2400	2				I
			HARV				1342	2327	2				IIIN
			HARV	1445	2400	1							IN
			HARV				1505	1507	2				IIIG
			WEIS				1505.1	1506.7	1				IIIG
			WEIS				1525.0	1525.6	1				IIIG
			WEIS				1542.8	1542.9	2				IIIB
			HARV				1543		2				IIIG
			HARV				2114		2	2114		1	IIIB
			HARV				2214	2216	3	2215	2216	1	IIIGG
			LEAR				2325.8	2326.1	1				III
			HARV				2341	2357	3				II
			HARV				2345		1				IIIG
			LEAR				2345.0	2345.4	1				III
			LEAR				2345.1	2351.0	1				II
			LEAR				2347.1	2351.0	1				II
			LEAR				2354.0	1023.0	1				IV
16			LEAR				0222.7	0223.7	2				III
			PALE				0223.8	0224.1	2				III
			LEAR				0346.4	0347.8	2				III
			WEIS				0613	1200	1				CONT
	0612	1651	WEIS				0613	1650	2				IS,DC
			WEIS				0918	1554	1				IIIN
	1331	2400	HARV				1331	2400	3				IC,DC
			HARV	1355		1							IIG
			HARV	1420	2201	1							INW
			HARV				1454	1755	2	1634	1755	1	IIIN
			HARV	1457	1458	1	1457	1458	1				IIIG
			HARV	1513	1514	2	1513	1514	2				IIIG,U
			HARV	1547	1548	2							IIIG
			HARV	1605		2							IIIG
			HARV	1637	1640	3	1637	1638	2				IIIG
			HARV	1650	1651	2	1651		1				IIIG
			HARV				1755	1954	2	1755	1954	2	IIIS
			HARV	1923	1924	2							IIIG
			HARV	1949	1951	2							IIIG
			HARV				1954	2312	2	1954	2117	2	IIIN
			HARV	2004	2005	2							IIIG
			HARV	2016	2019	2							IIIG
			HARV	2042	2046	1							IIIG
			LEAR				2243.0	1022.0	1				CONT
17	0608	1414	WEIS				0610	1653	2				IS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17	1420	1653	WEIS				0638	1534	1				IIIN
			WEIS				0931.2	0931.6	2				IIIG
			WEIS				1000	1620	1				CONT
	1331	2355	HARV				1331	2125	3				IC
			HARV	1637	1638	2							IIIG
			WEIS				1637.6	1637.8	1				DCIM
			HARV	1646	1648	2							IIIGG
			HARV	1656	1700	3	1657	1658	3	1657	1658	2	IIIGG
			HARV				1820	1821	3	1820	1821	2	IIIG.U
			PALE				1820.4	1820.6	2				III
			HARV	1836		2							IIIG
			HARV				1857	1900	1	1857	1900	1	IIIGW
			PALE				2021.0	2025.6	1				G
			HARV	2022		1	2021	2025	3	2021	2025	2	IIIGG
			HARV	2053	2256	1							INW
			HARV				2110	2111	3				IIIG
			HARV				2125	2355	2				IC
			LEAR				2243.0	1021.0	1				CONT
18			LEAR				0338.9	0339.3	2				III
			LEAR				0436.9	0439.2	2				V
			LEAR				0445.8	0446.9	2				III
			LEAR				0527.0	0529.8	2				III
	0606	1655	WEIS				0611	1655	2				IS
			WEIS				0624.4	0627.7	2				DCIM
			WEIS				0845.3	0845.5	1				U
			WEIS				0920	1628	1				IIIN
			WEIS				1033.5	1034.3	2				IIIG
			WEIS				1208.3	1209.7	2				IIIG
			WEIS				1238.7	1239.8	2				IIIG
			SGMR				1238.9	1239.1	1				III
	1331	2400	HARV				1331	2400	2				IC
			HARV	1340	2400	1							INW
			HARV				1545	1753	2				IIIN
			HARV	1555	1556	1	1555	1556	3				IIIG
			WEIS				1555.4	1555.9	3				IIIG
			HARV	1819	1927	1							IW
			HARV	2135		2	2135		2				IIIG
			PALE				2137.8	2138.6	2				III
			HARV				2138		3	2138		1	IIIGG
19			LEAR				0425.8	0427.3	1				III
	0603	1241	WEIS				0606	1626	2				IN
	1318	1656	WEIS				0754.8	0756.0	3				IIIG
			LEAR				0754.8	0756.2	2				III
			WEIS				0852.5	0855.2	1				IIIG
	1331	2400	HARV				1331	1452	2				I
			HARV				1452	2400	1				IN
			HARV				1518	1519	2				IIIG
			WEIS				1518.2	1519.3	1				IIIG
			HARV	1540	2040	1							INW
			HARV	1805		1	1805		2				IIIG
			HARV				1902	1903	2	1903		2	IIIG,U
			PALE				1902.7	1903.4	1				III
			HARV				1932	1935	2	1932	1935	2	IIIGG,V
			HARV	2040	2100	2							I
			HARV	2100	2400	1							INW
			HARV	2105		1	2105		2				IIIG
			HARV	2123	2124	2	2123	2124	2	2123	2124	1	IIIG
			HARV	2207	2208	2							IIIG
			LEAR				2313.0	1020.0	1				CONT
20			LEAR				0215.0	0215.3	1				III
	0602	1658	WEIS				0648	0827	1				IN
			WEIS				1056.7	1057.4	1				IIIG
	1331	2400	HARV	1343	2400	1	1331	1713	1				IN
			HARV	1501	1502	2							IIIG
			WEIS				1501.8	1507.5	1				II
			HARV	1502	1504	2	1503	1508	2				II
			WEIS				1503.0	1652	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			HARV				1507	1508	2				IIIB
			HARV				1713	2000	2				I
			HARV				1813	1816	2	1813	1815	1	IIIGG
			HARV				1830	2349	2	1905		1	IIIN
			HARV				1921	1922	3	1921	1922	2	IIIG
			PALE				1921.6	1921.9	2				III
			HARV				2000	2100	2				IC
			HARV				2013	2014	2	2013	2014	1	IIIG
			PALE				2013.6	2013.9	1				III
			HARV				2100	2400	2				I
			HARV				2121	2122	2				IIIG
21			LEAR				0213.2	0217.8	1				III
			LEAR				0323.8	0326.5	1				III
			LEAR				0403.6	0409.7	3				III
			PALE				0404.0	0406.3	2				V
			LEAR				0417.9	0433.7	1			II	
			LEAR				0523.8	0524.4	1				III
	1241	1657	WEIS				0604.3	0604.6	2				IIIG
	0600	1110	WEIS				0615	1653	1				IN
			LEAR				0640.4	0641.1	1				III
			WEIS				0640.7	0641.8	1				IIIB
			WEIS				0648.7	0648.9	1				IIIB
			WEIS				0651.1	0652.3	1				IIIB
			WEIS				0728.7	0729.2	1				IIIB
			WEIS				0824.4	0826.8	2				IIIG
			LEAR				0824.5	0826.9	2				III
			WEIS				0917.8	0917.9	1				IIIB
			WEIS				1247.7	1247.9	1				IIIB
			WEIS				1259.2	1259.6	2				IIIG
			WEIS				1304.6	1304.9	2				IIIG
	1331	2400	HARV				1342	1420	1				IN
			HARV	1355	2400	1							INW
			HARV				1401	1405	3	1404	1405	2	IIIGG,V
			WEIS				1401.6	1405.2	3				IIIGG,DCIM
			SGMR				1404.4	1404.6	2				III
			HARV				1420	1520	2				I
			HARV	1453		1	1453		2				IIIG
			WEIS				1513.3	1513.6	1				IIIB
			HARV				1520	2400	1				IN
			HARV	1624		1	1623	1627	1				IIIGGW
			HARV	1632	1635	1	1631	1634	2	1633		1	IIIGG
			WEIS				1632.7	1634.3	3				IIIG
			HARV	1754	1758	2	1754	1758	3	1754	1758	2	IIIGG,V
			PALE				1754.1	1758.1	2			II	
			SGMR				1754.8	1756.5	2				G
			HARV				1801	1809	2			II	
			HARV				1811	2340	2	1920	2010	2	IIIN
			HARV	2126	2127	1	2126	2127	2	2126		1	IIIG,U
			PALE				2126.0	2126.4	2				III
22			LEAR				0237.0	0238.3	1				III
			PALE				0327.0	0327.2	1				III
			PALE				0412.3	0412.6	1				III
			LEAR				0412.4	0415.9	2				III
			LEAR				0551.5	0607.9	3				G
	0557	1659	WEIS				0557.0	0558.7	2				IIIG
			WEIS				0559.8	0602.8	3				IIIG
			WEIS				0606	1606	2				IIIS
			WEIS				0630	0852	1				IN
			WEIS				0704.3	0704.8	2				IIIG
			WEIS				0830.2	0833.1	2				IIIG
			WEIS				0835.7	0836.2	2				IIIG
			WEIS				0909.6	0910.8	3				IIIG
			LEAR				0909.7	0910.7	2				III
			LEAR				0913.9	0918.5	1				III
			WEIS				1004.3	1004.5	2				IIIG
			WEIS				1007.7	1008.7	2				IIIG
	1331	2350	HARV				1331	2350	1				I
			HARV				1347	1350	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22			HARV				1355	1357	2				IIIG
			HARV				1401	1402	2				IIIG
			WEIS				1401.2	1401.7	2				IIIG
			HARV	1406	2350	1							INW
			HARV				1407	2253	2	1729	2039	2	IIIN
			HARV				1413	1419	3				IIIGG
			WEIS				1413.6	1418.6	3				IIIGG
			HARV				1434	1606	2				IIIS
			WEIS				1652.7	1656.6	3				IIIGG
			HARV	1653	1656	1	1653	1656	3	1653	1656	2	IIIGG,V
			HARV				1723	1725	2	1724	1725	1	IIIG
			HARV	1929	1932	2	1929	1933	3	1931	1933	2	IIIGG,V
			PALE				1931.2	1932.9	2				G
			SGMR				1931.7	1932.5	1				V
			HARV				2259	2302	3				IIIGG,U
			PALE				2259.9	2301.7	1				G
			LEAR				2300.7	2301.4	1				III
23			LEAR				0041.4	0041.9	1				III
			LEAR				0109.0	0109.7	1				III
			LEAR				0146.9	0152.2	1				II
			LEAR				0214.6	0218.0	1				III
			LEAR				0255.0	0301.1	1				III
			LEAR				0303.1	0304.1	1				III
			PALE				0303.2	0322.1	2				GG
			LEAR				0320.8	0321.1	2				III
			LEAR				0348.5	0348.8	1				III
			LEAR				0410.9	0411.3	1				III
			LEAR				0526.0	0534.9	1				V
			LEAR				0545.5	0546.9	1				III
			LEAR				0552.3	0559.1	1				III
	0556	1023	WEIS				0606	1421	2				IS,DC
	1027	1701	WEIS				0627	1657	2				IIIN
			LEAR				0641.3	1016.0	1				CONT
			LEAR				0731.1	0732.5	1				II
	1331	2400	HARV				1331	1800	2				I
			HARV	1336	2400	1							INW
			HARV				1413	1414	2				IIIG
			HARV				1425	2329	2	2019	2205	2	IIIN
			HARV				1429	1431	2				IIIG
			HARV				1448	1449	3				IIIG
			WEIS				1448.3	1449.3	3				IIIG
			HARV				1602		3	1602		1	IIIG
			WEIS				1602.2	1602.4	2				IIIG
			HARV				1649	1650	2				IIIG
			HARV				1656		2	1656		1	IIIG
			WEIS				1659.7	1700.8	2				IIIG
			HARV				1700	1703	3	1700	1703	2	IIIGG
			HARV				1736	1755	2	1736	1755	1	IIIGG
			HARV				1800	2400	1				IN
			HARV				1819	1841	2	1819	1841	1	IIIGG
			HARV				1917	1930	2	1917	1930	1	IIIGG
			HARV				2038	2043	2	2038		1	IIIGG
			HARV				2053	2054	2				IIIG
			HARV	2121	2122	2				2121	2122	1	IIIG
			PALE				2121.7	2122.0	1				III
			PALE				2205.4	2205.6	2				III
			HARV				2301	2302	2				IIIGG
			LEAR				2301.9	2302.7	1				III
			HARV	2324	2324	1	2324	2325	2				IIIG
			HARV	2351	2357	2	2356	2357	2				IIIG
24	0551	1704	WEIS				0553	1647	2				IS,DC
			WEIS				0632	1703	2				IIIS
			WEIS				0936.7	0937.6	2				IIIG
	1331	2350	HARV				1331	1432	3				I
			HARV	1348	2350	1							INW
			HARV				1432	1825	1				I
			HARV				1435	2341	2	1729	2211	2	IIIN
			HARV				1539	1548	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			HARV				1629	1630	2	1629		1	IIIG
			HARV				1636		2				IIIG
			HARV				1649		2	1649		1	IIIG
			HARV				1657	1703	2	1657	1703	1	IIIGG
			HARV				1707	1708	3	1707	1708	2	IIIG
			HARV				1719	1722	2	1719	1722	2	IIIG
			HARV				1825	1912	3				I
			HARV				1840	1858	3				UNCL
			HARV				1912	2344	1				IN
			HARV				1926	1928	3	1926	1928	2	IIIG,V
			HARV	1948	1949	1	1948	1949	3	1948	1949	2	IIIG
			HARV				1959	2000	2	1959		1	IIIG,U
			HARV				2151		2				IIIG,U
			HARV				2236	2237	2				IIIG
25	0549	0816	WEIS				0635	1329	2				IN
	0820	1706	WEIS				0645	1635	2				IIIN
			WEIS				1205.3	1206.6	3				IIIG
			WEIS				1214.2	1215.1	2				IIIG
	1331	2400	HARV				1331	1852	1				IN
			HARV	1404	2400	1							INW
			WEIS				1625.8	1626.2	3				IIIG
			HARV	1627	1629	2	1626	1630	3	1627	1630	2	IIIGG
			HARV				1730	1731	1				IIIGW
			HARV				1832	2245	2	1832	2002	2	IIIN
			HARV				1852	2400	2			1	I
			HARV	1941	1942	1	1941	1942	2				IIIG
			HARV				2035		2				IIIG
			HARV				2041	2045	2	2041	2045	1	IIIG
			HARV				2308	2310	2				IIIG,U
			HARV				2318	2321	2				IIIG
26	1545	1707	WEIS				0548.3	0550.2	3				IIIG
			WEIS				0550	1639	2				IS,DC
	0547	1542	WEIS				0551	1705	2				IIIS
			WEIS				0706.7	0709.3	2				IIIG
			WEIS				1057.8	1058.1	2				IIIB
			WEIS				1313.1	1314.0	2				IIIG
	1315	2400	HARV				1315	2400	2				I
			WEIS				1316.3	1316.8	2				IIIB
			HARV	1321	2400	1							INW
			WEIS				1339.3	1339.6	2				IIIB
			HARV				1349	1351	1				IIIG
			WEIS				1350.6	1350.8	2				IIIG
			HARV				1355	2329	1	1638	2154	1	IIIN
			WEIS				1417.1	1417.6	2				IIIG
			HARV				1434	1435	2				IIIG
			WEIS				1434.6	1435.7	2				IIIG
			WEIS				1455.9	1504.3	3				IIIGG/V
			HARV	1458	1500	1	1456	1502	3	1457	1458	1	IIIGG
			HARV				1544	1548	2				IIIGG
			HARV	1615	1619	2							IIIG
			HARV	1642		1	1642	1648	2	1648		1	IIIGG
			HARV				1652	1658	2	1655	1658	1	IIIGG
			HARV	1739		1	1737	1740	2	1737	1739	2	IIIG
			HARV	1745	1746	2	1745	1746	2				IIIGG
			HARV				1753		2	1753		2	IIIG
			HARV				1914	1915	3				IIIG
			HARV				1944	1951	2	1947	1951	1	IIIG
			HARV				2035		2				IIIG
			HARV				2042	2048	2	2042	2048	2	IIIG
			HARV	2137	2143	2	2137	2143	3	2138	2143	2	IIIGG
			HARV				2159	2200	2				IIIG
			HARV	2245	2248	2	2245	2248	2	2247		2	IIIGG
			LEAR				2330.0	1012.0	1				CONT
27			LEAR				0209.7	0210.6	1				III
			LEAR				0310.2	0311.6	1				III
			LEAR				0407.4	0414.5	2				III
	0545	1607	WEIS				0552	1356	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			WEIS				0559	1533	2				IIIN
			WEIS				1008.6	1011.8	3				IIIGG
			WEIS				1127.8	1133.5	2				DCIM
			WEIS				1151.2	1151.4	2				IIIB
			WEIS				1247.3	1247.8	2				IIIG
	1315	2400	HARV				1315	2400	1				I
			HARV	1315	2400	1							INW
			HARV				1351	1400	1				IIIGG
			HARV				1409	1412	3				IIIGG,U,V
			WEIS				1409.4	1409.6	1				U
			WEIS				1410.3	1412.3	3				IIIG,U
			SGMR				1411.4	1412.2	1				V
			HARV				1418	2253	2	1919	2022	2	IIIN
			HARV				1427		2				IIIG
			HARV				1532		2				IIIG
			HARV				1604	1606	2	1604		1	IIIG
	1652	1708	WEIS										
			HARV				1725	1855	2				I,DC
			HARV				1832	1835	2	1832	1835	2	IIIG
			HARV				1907	1908	2	1907	1908	2	IIIG
			HARV				2001	2002	2	2001	2002	2	IIIG
28			LEAR				0029.1	0030.1	1				III
			LEAR				0147.7	0151.6	2				III
			LEAR				0304.3	0311.6	3				III
			LEAR				0317.8	0318.0	1				III
			LEAR				0333.1	0333.3	1				III
			LEAR				0334.0	1011.0	1				CONT
			LEAR				0431.3	0433.0	2				III
			LEAR				0431.3	0443.0	2				G
			LEAR				0518.9	0520.1	1				III
			LEAR				0537.1	0537.8	1				III
			LEAR				0617.1	0618.3	2				III
			LEAR				0633.9	0634.2	2				III
			LEAR				0652.0	0657.8	2				III
			LEAR				0713.5	0726.2	2				G
			LEAR				0813.3	0817.1	2				III
			LEAR				0832.3	0840.7	1				III
			LEAR				0856.8	0857.1	1				III
			LEAR				0859.8	0900.2	2				III
			LEAR				0910.0	0911.0	2				III
			LEAR				0916.0	0917.2	2				III
			LEAR				1003.2	1006.2	2				III
			SGMR				1305.9	1307.3	1				V
	1315	2400	HARV	1315	2400	1	1315	2400	1				INW
			HARV				1318	2331	2	1759	1935	1	IIIN
			HARV				1323	1325	2				IIIG
			HARV				1406	1410	2				IIIGG
	1340	1707	WEIS				1406.2	1412.3	3				IIIGG
			WEIS				1421.6	1426.9	3				IIIGG
			HARV				1422	1432	2				IIIGG
			SGMR				1426.0	1427.0	1				V
			WEIS				1432.1	1432.3	2				IIIB
			WEIS				1452.1	1453.2	2				DCIM
			WEIS				1516.6	1517.3	3				IIIG
			SGMR				1516.7	1517.2	1				V
			HARV				1517		2	1517		1	IIIG
			WEIS				1518.7	1518.8	1				IIIB
			HARV				1521	1524	2				IIIGG
			WEIS				1522.3	1523.7	2				IIIG
			HARV				1533	1536	2	1533		1	IIIG
			WEIS				1533.2	1535.2	1				IIIG
			HARV				1550	1555	1	1555		1	IIIGGW
			WEIS				1551.7	1552.4	1				IIIG,RS
			WEIS				1554.6	1554.7	1				IIIB
			WEIS				1612.0	1615.3	3				IIIGG
			HARV	1613	1614	1	1612	1616	3				IIIGG
			HARV				1631	1633	3	1631	1632	2	IIIG
			WEIS				1631.6	1632.3	2				IIIG
			HARV				1701	1702	3	1701		2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			WEIS				1701.1	1701.3	1				IIIB
			HARV				1713	1721	3	1714	1719	2	IIIGG,V,U
			SGMR				1713.8	1714.1	1				III
			HARV	1732	1736	2	1728	1739	3	1728	1737	2	IIIGG
			HARV				1837	1840	3	1837	1840	1	IIIGG
			HARV				1902		2				IIIG
			HARV				2007	2012	2	2012		1	IIIG
			HARV	2032		1	2027	2032	2			1	IIIGG
			HARV				2043	2048	3	2043		2	IIIG
			HARV	2106	2107	1	2057	2115	3	2057	2110	2	IIIGG
			HARV				2153	2207	3	2201		1	IIIGG
			HARV				2237	2238	3				IIIG
			HARV				2335		2				IIIG
			LEAR				2358.0	2358.2	1				III
29	0544	0928	WEIS				0614.3	0614.6	1				IIIG
			WEIS				0718.1	0718.3	1				IIIG
			WEIS				0723.1	0723.6	1				IIIG
			WEIS				0730	1204	2				IN
			WEIS				0730.5	0733.3	2				IIIG
			WEIS				0757.2	0757.5	1				IIIG
			WEIS				0804.6	0806.7	3				IIIGG
			WEIS				0819.0	0820.9	3				IIIG
			WEIS				0822.9	0826.2	3				IIIGG
			WEIS				0845.4	0846.2	2				IIIG
			WEIS				0901.3	0901.7	1				IIIG
			WEIS				0909.3	0909.4	2				IIIB
			WEIS				0914.3	0917.3	3				IIIGG
	1011	1422	WEIS				1011.2	1011.5	1				IIIG
			WEIS				1014.6	1016.3	2				IIIG
			WEIS				1034.7	1036.2	2				IIIG
			WEIS				1037.8	1038.6	3				IIIG
			WEIS				1040.7	1041.6	2				DCIM
			WEIS				1044.5	1044.7	1				U
			WEIS				1104.9	1106.4	2				IIIG
			WEIS				1111.9	1112.0	2				IIIB
			WEIS				1114.8	1114.9	1				IIIB
			WEIS	1116.7	1116.8	1							IIIB
			WEIS				1129.7	1130.9	3				IIIB,U
			WEIS				1139.1	1139.6	2				IIIG
			WEIS				1220.2	1220.9	2				IIIG
			WEIS				1225.3	1225.4	1				IIIB
			WEIS				1240.2	1240.3	1				IIIB
			HARV				1329	2307	2				IIIN
	1319	2355	HARV	1334	2349	1	1319	2355	1				IN
			WEIS				1400.4	1400.7	1				IIIG
			WEIS				1405.9	1406.7	2				IIIG
			HARV				1406	1407	2				IIIG
			HARV	1428	1440	2	1428	1440	2				IIIGG
			HARV	1628	1629	2							IIIG
			HARV				1638	1639	2				IIIG
	1536	1709	WEIS				1652.9	1654.3	2				DCIM
			HARV	1653	1657	2	1653	1657	2	1657		2	IIIGG
			WEIS				1655.7	1656.7	2				DCIM
			WEIS				1656.8	1657.1	2				IIIB
			HARV				1712		2	1712		2	IIIG
			HARV				1805		2				IIIG,U
			HARV	1811		1	1811		2				IIIG
			HARV	1853	1904	2	1853	1908	2				IIIGG
			HARV	1931		1	1931	1932	3	1931	1932	2	IIIGG,V
			HARV				1949	1950	3	1949	1950	1	IIIG
			HARV	2014		1	2013	2014	3	2013	2014	2	IIIGG.V
			HARV	2025	2026	2	2025	2026	2				IIIGG
			HARV	2105	2107	1	2105	2107	2				IIIGG
			HARV	2112	2116	2	2113	2116	3				IIIGG
			HARV	2209	2210	1	2209	2210	2				IIIGG
			HARV	2221	2224	3	2221	2224	3				II'GG
			HARV	2235	2240	2							IIIG
			HARV				2259	2300	2				IIIG
			LEAR				2357.0	2357.3	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
30			LEAR				0001.6	0005.3	1				III
			LEAR				0020.1	0020.4	1				III
			LEAR				0112.8	0113.1	1				III
			LEAR				0234.6	0240.9	3				III
			LEAR				0539.2	0545.0	3				III
			LEAR				0539.4	0549.0	3				II
	0541	1711	WEIS				0541	0736	2				CONT
			WEIS				0541	0800	2				IIIS
			LEAR				0546.0	0929.5	2				IV
			WEIS				0548.3	0549.8	3				IIIG
			WEIS				0549	0654	5				DCIM
			WEIS				0802.2	0807.2	2				IIIGG
			WEIS				0816.2	0820.7	2				IIIGG
			WEIS				0854.9	0855.3	2				IIIG
			WEIS				0942.1	0942.3	1				IIIG
			WEIS				0946.7	0947.7	3				IIIG
			LEAR				0946.8	0947.0	1				III
			WEIS				1011.8	1013.5	2				DCIM
			WEIS				1024.3	1024.6	1				IIIB
			WEIS				1033.7	1035.7	2				IIIG
			WEIS				1120.3	1121.4	3				IIIG
			WEIS				1129.4	1130.3	3				IIIG
			WEIS				1133.6	1135.6	3				IIIG,U
			WEIS				1142.2	1146.4	2				IIIG
			WEIS				1218.1	1218.7	3				IIIG
			WEIS				1226.1	1226.3	2				IIIG
			WEIS				1310.4	1310.6	2				IIIG
			WEIS				1312.9	1213.3	1				IIIG
			WEIS				1334.3	1334.7	2				IIIG
	1321	2350	HARV	1352	2345	1	1321	2350	1				IN
			WEIS				1352.7	1353.2	1				IIIG
			WEIS				1355.4	1355.5	1				IIIB
			WEIS				1359.4	1400.4	2				IIIG
			HARV				1400	2335	2	1722	1951	2	IIIN
			WEIS				1419.7	1420.1	1				U
			WEIS				1503.9	1508.7	3				IIIGG
			HARV	1505	1512	1	1504	1510	3	1505	1506	2	IIIGG,V,U
			WEIS				1539.9	1540.6	2				IIIG
			HARV	1540		1	1540		2	1540		2	IIIG
			HARV	1547	1548	1	1547	1548	2	1547	1548	1	IIIG
			WEIS				1547.7	1548.8	2				IIIG
			HARV				1603	1604	2	1603	1604	1	IIIG
			WEIS				1603.7	1603.9	1				IIIG,U
			HARV				1619	1623	2	1600		1	IIIG
			WEIS				1619.4	1621.3	1				IIIG
			WEIS				1623.2	1623.4	1				IIIG
			PALE				1736.9	1821.1	2				GG
			HARV	1737		1	1737		2	1737		2	IIIG
			HARV	1747	1748	2	1747	1748	3	1747	1748	2	IIIGG,V,U
			HARV	1757	1758	1	1754	1758	2	1754	1758	2	IIIGG,V
			HARV				1814	1817	3	1814	1817	2	IIIGG
			SGMR				1814.9	1815.5	1				III
			SGMR				1820.8	1821.0	1				III
			HARV				1821	1823	2	1821	1823	2	IIIGG
			HARV				1857	1906	2	1857	1906	2	IIIGG,V
			HARV	1917	1918	1	1917	1918	1	1917		2	IIIG
			HARV				2013		2	2013		2	IIIG
			HARV	2020	2025	2	2021	2024	2	2021	2024	1	IIIGG,DCIM
			HARV	2056	2100	2	2057	2100	3	2058	21	2	IIIGG,V
			PALE				2058.3	2100.4	3				V
			SGMR				2058.9	2100.2	1				V
			HARV	2250	2256	2	2252	2253	3	2252	2253	2	IIIGG
			PALE				2250.5	2253.5	3				V
			LEAR				2252.2	2252.9	2				III
			PALE				2325.2	2358.2	2				GG
			LEAR				2325.2	2331.7	1				III
			HARV				2331		2				IIIB
			LEAR				2346.1	2346.7	1				III
			LEAR				2355.9	2357.3	2				III
			LEAR				2357.0	2357.3	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

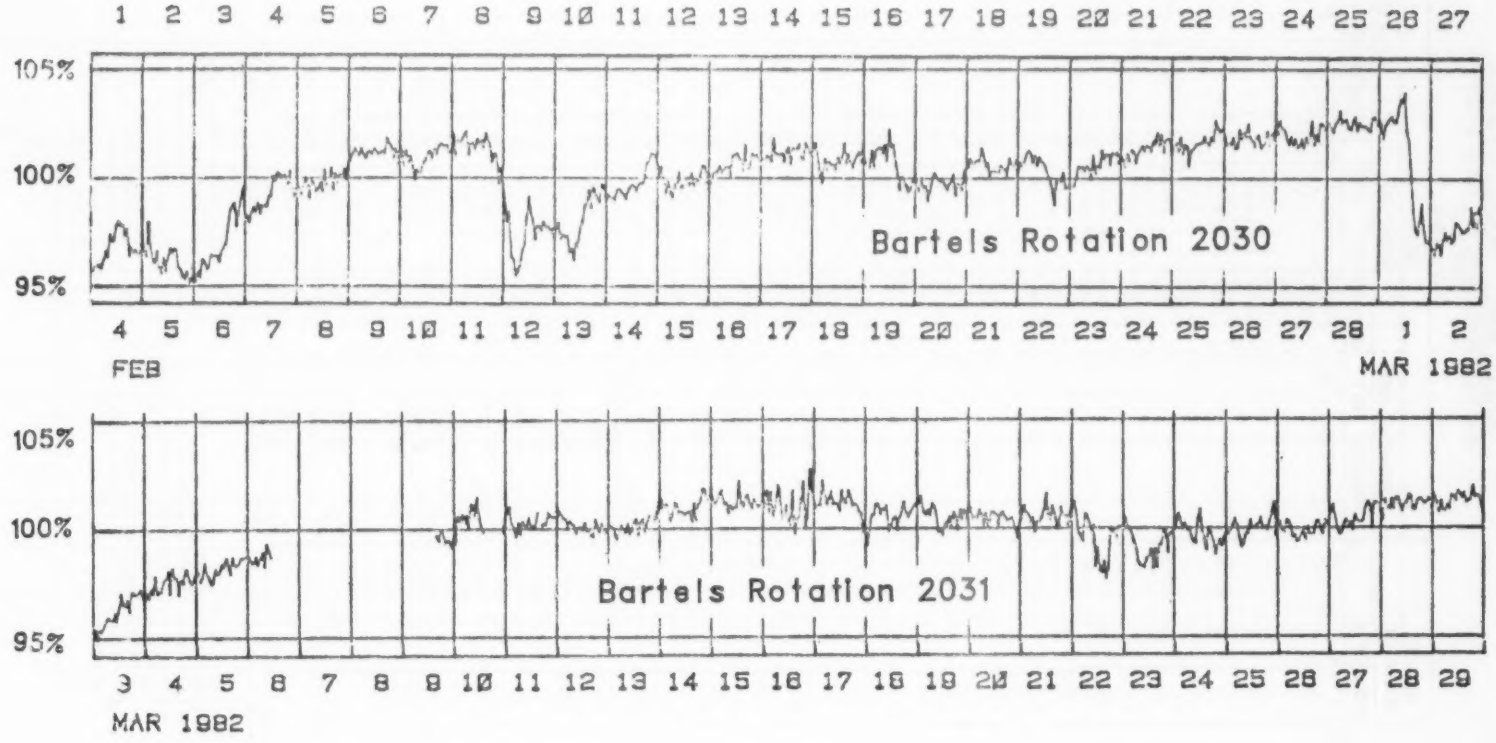
	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			PALE				0008.5	0422.0	1				CONT
			PALE				0012.5	0014.6	3				V
			LEAR				0114.0	0114.5	1				III
			LEAR				0130.5	0135.5	2				III
			LEAR				0143.2	0152.5	1				III
			LEAR				0227.0	0227.3	1				III
			LEAR				0251.1	0258.4	1				III
			LEAR				0305.8	0307.5	1				III
			LEAR				0410.2	0411.0	2				III
			LEAR				0420.5	0430.4	2				III
			LEAR				0454.5	0454.8	1				III
			LEAR				0531.8	0535.1	3				III
			LEAR				0544.8	0545.2	1				III
			LEAR				0600.9	0601.8	1				III
	0640	0644	WEIS				0600.9	0601.3	1				IIIG
			LEAR				0626.7	0627.0	1				III
	0651	1712	WEIS	0654.1	0654.7	1							DCIM
			LEAR				0658.0	0701.9	1				III
			WEIS				0658.0	0701.6	3				IIIG
			WEIS				0727.8	0728.3	2				IIIB,U
			LEAR				0727.9	0728.6	1				III
			LEAR				0735.2	0738.8	2				III
			WEIS				0735.2	0735.8	3				IIIG
			WEIS				0738.6	0738.8	1				IIIB
			WEIS				0747.7	0747.8	1				IIIB
			LEAR				0805.7	0810.8	1				III
			WEIS				0806.2	0806.7	1				IIIB
			WEIS				0808.7	0810.6	3				IIIG
			WEIS				0856.7	0858.6	3				IIIGG
			LEAR				0857.2	0904.3	1				III
			WEIS				0901.2	0901.3	1				IIIG
			WEIS				0903.1	0904.2	2				IIIG
			WEIS				0913.4	0914.4	3				IIIG
			LEAR				0913.5	0914.3	2				III
			WEIS				1003.6	1003.9	3				IIIG
			LEAR				1003.7	1003.8	1				III
			WEIS	1033.3	1034.7	2							DCIM
			WEIS				1045.8	1045.1	2				IIIG
			WEIS				1116.7	1119.2	3				IIIG
			SGMR				1117.5	1118.8	1				III
			WEIS				1155.6	1155.8	2				IIIG,U
			WEIS				1204.4	1207.0	2				IIIG
			WEIS				1210.6	1211.7	2				IIIG
			WEIS	1244.2	1244.3	2							DCIM
			WEIS				1249.2	1249.3	1				IIIB
			WEIS				1306.8	1308.2	2				IIIG
	1321	2400	HARV				1330	2347	1				INW
			WEIS				1333.2	1333.4	1				IIIB
			HARV				1343	2352	2	1723	1818	1	IIIN
			HARV	1348	1350	1	1349		1				IIIGW
			WEIS				1442.7	1442.9	1				IIIB
			HARV	1452	1454	1	1453	1454	2				IIIG
			WEIS				1453.6	1454.8	2				IIIG
			HARV				1510		2				IIIG
			WEIS				1510.1	1510.6	2				IIIG
			HARV	1618	2300	1							INW
			WEIS				1621.7	1621.8	1				IIIB
			HARV				1622		2	1622		1	IIIB
			HARV	1628		2	1628		1				IIIG
			HARV	1711	1715	3	1711	1715	3	1714	1716	2	IIIGG,U,V
			PALE				2146.7	2148.0	2				G
			PALE				2224.4	2224.7	2				III
			LEAR				2346.1	2346.7	1				III
			LEAR				2347.9	2350.4	1				III

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

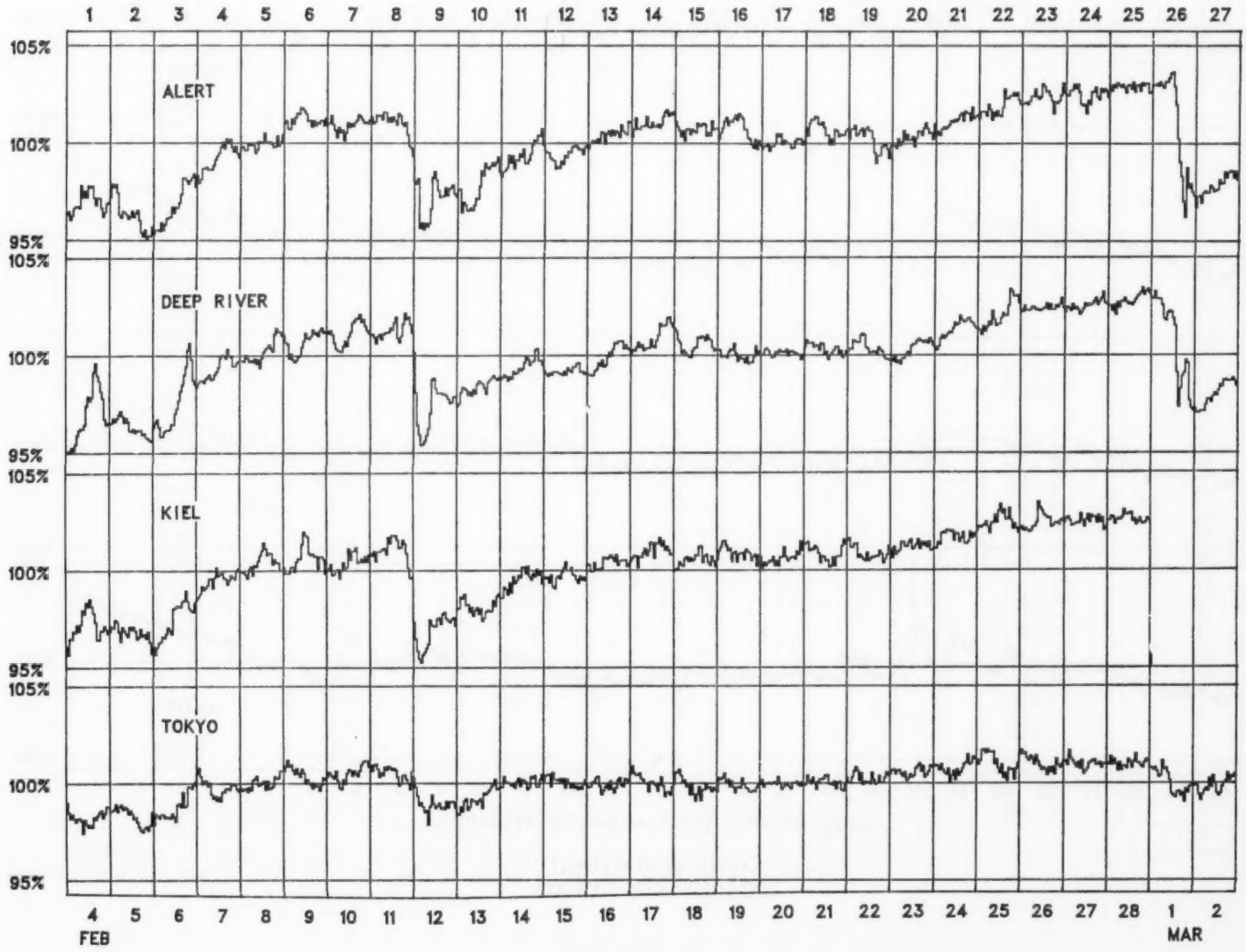
COSMIC RAY INDICES
(Neutron Monitor)

THULE NEUTRON MONITOR



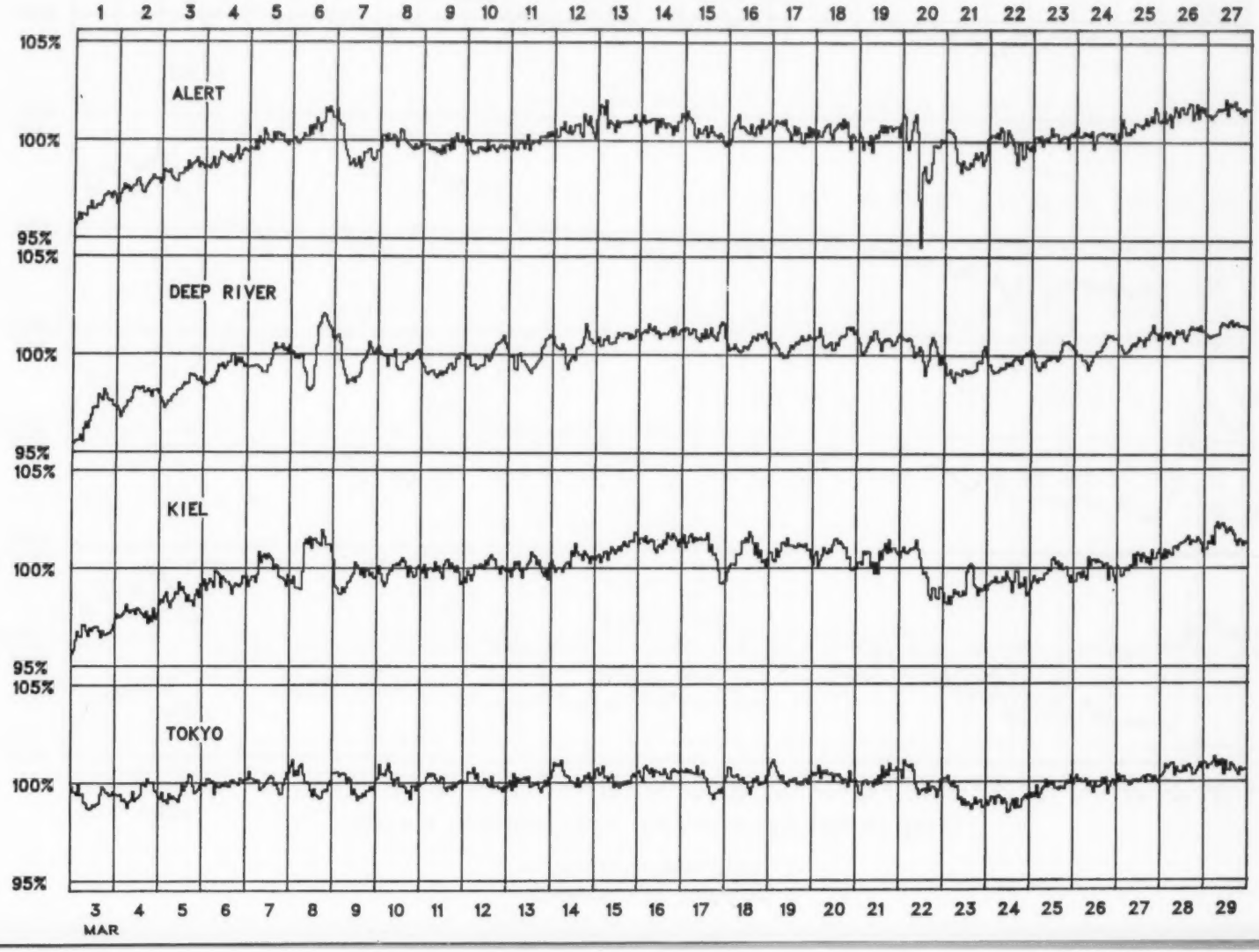
COSMIC RAY INDICES
(Neutron Monitor)

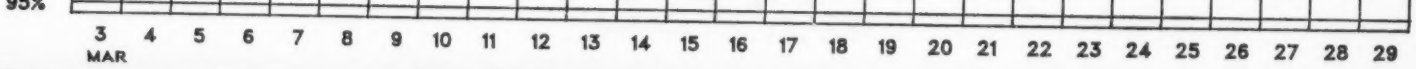
Bartels Rotation 2030 (February 1982–March 1982)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2031 (March 1982)





COSMIC RAY INDICES

(Neutron Monitors)

MARCH 1982

Mar 1982	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100)
1	4027	6614.6	6220.1	5626.3		3532.4	
2	3898	6410.5	6049.6	5489.5		3525.7	
3	3972	6518.8	6171.4	5574.0		3531.4	
4	4026	6589.0	6232.5	5631.0		3538.2	
5	4053	6642.0	6257.8	5682.7		3539.8	
6	4073	6684.6	6324.0	5724.9		3555.7	
7	----	6745.9	6354.8	5760.3		3558.2	
8	----	6790.5	6383.9	5801.9		3557.6	
9	4109	6710.6	6348.7	5738.0		3553.0	
10	4145	6743.7	6359.8	5759.6		3559.6	
11	4139	6729.6	6328.4	5761.7		3558.2	
12	4131	6721.1	6368.2	5766.2		3559.0	
13	4134	6744.5	6362.2	5769.5		3555.7	
14	4168	6789.6	6394.6	5788.8		3569.0	
15	4178	6818.8	6424.9	5822.2		3563.2	
16	4170	6808.8	6444.4	5844.1		3573.9	
17	4174	6780.0	6441.9	5822.7		3560.6	
18	4152	6792.1	6408.8	5806.2		3560.5	
19	4149	6784.4	6401.4	5822.5		3564.5	
20	4145	6780.0	6426.0	5808.5		3567.2	
21	4150	6772.5	6414.4	5798.5		3562.1	
22	4108	6709.4	6386.5	5764.0		3557.7	
23	4093	6703.6	6328.3	5703.0		3532.5	
24	4117	6744.2	6346.1	5723.7		3520.3	
25	4129	6760.4	6372.0	5751.5		3545.6	
26	4123	6769.2	6387.7	5761.0		3553.5	
27	4146	6808.7	6417.3	5784.2		3560.0	
28	4172	6849.5	6445.0	5829.3		3578.5	
29	4178	6857.6	6460.3	5858.5		3583.8	
30	4154	6817.0	6417.2	5817.0		3574.5	
31	4157	6800.9	6414.5	5812.4		3570.3	
MEAN	4116	6735.3	6357.8	5755.0		3555.6	

Data not available at time of publication.

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

MARCH 1982

Day		Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1	D2	2+	2+	3+	5-	6+	7	5-	8	39-	68	1.7	2+	2	3	5	6-	6+	4+	7-	100	77	103	41 140	
2	D1	8	8-	7-	7+	6	5+	5-	4	50-	107	1.9	7-	6+	6-	7-	6-	5-	4	4-	140	130	114	177 67	
3		3+	3-	2+	4-	3	3-	3-	2	22+	13	0.8	3-	2+	2+	3	3+	3-	3-	3-	24	22	21	20 22	
4		2	1	3-	4	3+	3-	2	2+	20	12	0.7	2	1	2+	4-	3	3-	2-	3-	22	21	25	23 23	
5		4-	5-	5-	3	2-	1	1-	1-	20	16	0.9	3+	4	4-	3-	1+	1-	1-	1-	23	26	27	44 8	
6	Q1	1	0+	0+	0+	1-	1-	0+	1	5-	3	0.0	0+	0	0	0+	0+	0+	0+	1-	2	4	4	4 5	CC
7	Q2	1-	1-	0	0+	0+	1-	0+	2-	5-	3	0.0	0+	2-	0	0	0	1-	1-	1+	4	6	11	9 8	CC
8		3-	2-	1+	1+	2	2	3-	4+	18	11	0.6	2	1	1	1-	2-	3-	3-	4-	17	27	17	13 31	
9		5-	2+	2+	3	3	4	3+	4	27-	20	1.0	4	2	2+	3-	3-	4-	3	4-	32	32	32	28 36	
10		4+	4	3+	3+	2+	3-	1	2	23	16	0.9	4-	3	3	3	2-	2+	1+	2	23	27	27	34 20	
11	Q9A	2-	3+	4-	1	2-	3-	2+	1+	18-	10	0.6	1	3-	3	1	2-	3-	2+	2-	16	21	19	20 20	
12	Q7A	1	1+	1	1-	1+	3+	3	3-	14+	8	0.4	1-	0+	0+	0	1+	3	3	3-	12	17	15	6 27	
13		5-	4-	2+	2	2	1	2	2	20-	13	0.7	4+	3	2+	2-	2-	1	2	2-	23	23	21	30 13	
14		3	2	1+	2-	3-	3-	4-	2	19	11	0.6	2+	1+	1	2	2+	3-	4-	1+	18	26	23	18 31	
15	Q5A	3+	3-	2-	1-	1-	1	1-	1+	12	7	0.3	3-	2	2-	0+	0+	1	1-	1	9	18	10	20 9	
16	Q3	1+	2	1-	1-	1	1+	1	1+	9+	4	0.2	1	1+	0+	1-	1	1	1-	1	6	10	7	8 9	CC
17		1-	1-	2-	2	4-	4	3+	4	20	14	0.8	1-	1-	2-	2-	3	3+	3+	3+	23	26	23	9 40	
18		4	4-	4-	4-	3+	3+	3+	3-	28-	20	1.0	4-	3+	3+	3+	3-	3	3-	3	32	38	29	40 28	
19	Q0A	4-	3	3	2	2	1	1	2	18-	10	0.6	3	2+	3-	2	2	0+	1-	2	16	23	11	25 10	
20		1-	2+	4	3-	3	3-	2+	3-	20+	12	0.7	1-	2+	3	3-	3-	2+	3-	3-	21	23	24	23 25	
21	D4	1+	3+	4+	3+	3	4+	5-	4	28+	23	1.1	2	3	4-	4-	3+	4-	4	4-	39	36	41	31 46	
22	D3	6	6+	5	3+	3+	4	3-	2+	33	38	1.4	5-	5-	4	3+	3	4-	3	3-	49	52	55	65 42	
23	Q6A	2+	2+	2	2+	3	2-	0+	1	15	8	0.4	2+	2-	2	2+	3-	1	0+	1-	13	15	28	28 15	
24		1+	2	2	3	2+	4-	3+	3-	20+	12	0.7	1	2	2-	2+	2+	3+	3+	3-	22	22	22	17 27	
25	D5	4-	3+	3+	4-	4	4-	3+	3	28	20	1.0	3+	3-	3-	3+	4-	3	3-	3-	31	38	25	32 32	
26		3-	2+	2-	3-	2-	3+	2	3+	20-	11	0.6	2+	2	1	2+	2	3	2-	3-	17	25	17	17 25	
27	Q8A	4-	3-	2+	2+	2+	1	1	1-	16	9	0.5	3	3-	2-	2+	2	1-	1	1-	14	18	19	26 12	
28	Q4K	1+	3+	2	1	1-	0+	0+	1+	10+	6	0.3	1+	3-	2-	1-	1	0	0	1+	8	7	12	14 6	C
29		2-	4-	4+	2+	1+	2-	2+	3	20+	13	0.7	1	3	4-	3-	1+	1+	2+	3-	20	23	24	26 20	
30		3	4-	2	3-	4	3	2	3-	23	15	0.8	2+	3+	2	3-	4	3-	2-	3	26	27	29	26 30	
31		4-	4	3	3	3	4	3+	4-	28-	20	1.0	4-	3+	3	3-	2+	4-	4-	3	34	32	35	30 37	
									Mean		18	0.74									27.0	28.8	28.1	28.5	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	2	2	3	5-	6	6+	4+	7-	96	3-	2	3	5	6-	7-	4+	7-	103
2	7	6+	6-	7-	6-	5-	4	4-	142	7-	6+	6	7-	5+	5-	4	4	139
3	3-	2+	2+	3+	4-	3-	3-	2+	27	3-	2	2	3	3	2+	3-	3-	22
4	2-	1-	3-	4	3	2+	2-	2+	22	2+	1+	2+	4-	3	3-	2-	3-	22
5	3+	4	4	3	2-	1	1-	1-	25	3+	4-	3+	3-	1	0+	1-	0+	21
6	1-	0+	0	0+	1-	1-	1-	1	3	0+	0	0	0	0	0+	0	0+	1
7	0+	2	0	0+	0	1	1	2-	6	0+	2-	0	0	0+	0+	0+	1	3
8	2	1	1+	1	2	3-	3	4-	18	2-	1	1	1-	1+	3-	3-	3+	16
9	4-	2-	2+	3-	3-	4-	3+	4-	32	4	2	2+	3-	3-	4-	3	4-	32
10	4-	3-	3	3	2	3-	1+	2+	24	4-	3	3	3	1+	2	1	2-	22
11	1	3-	3	1	2-	3-	3-	1+	17	1-	2+	3-	1	1+	3-	2+	2-	15
12	1-	1-	1-	0+	2-	3	3-	3-	14	1-	0+	0+	0	1	3	3	2	11
13	4	3	2+	2	2	1+	2+	2	22	5-	3+	3-	1+	2-	0+	2	2-	24
14	2+	1+	1	2	3-	3-	3+	2-	18	2+	1+	1	2	2+	3-	4-	1	18
15	3-	2	2-	0+	0+	1+	1	1+	10	3-	2	2-	0+	0+	1	1-	1-	9
16	1-	1+	0+	1-	1	1+	1	1	7	1	1	0+	1-	1-	1-	1-	1-	5
17	1-	1-	2	2-	3	4-	3+	4-	25	1-	1	2-	2-	3+	3-	3+	3	21
18	4	3	3	3+	3-	3+	3	3	33	4-	4-	3+	3+	2+	3-	3-	3-	31
19	3+	3-	3-	2	2	1-	1	2+	18	3	2	2	2	2-	0	0+	1+	13
20	1-	2+	3+	3-	3	2+	3-	3-	22	1	2+	3	3-	3-	3-	2+	3-	21
21	2+	3	4-	4	4-	4-	4+	4	46	1+	3	4-	3	3+	3	4-	3+	33
22	5	5	4+	3+	3	4	3	3-	52	5-	5-	4-	3+	3+	4-	3	3-	47
23	2+	2-	3-	2+	3	1	0+	1	15	2+	2-	2-	2	3-	1-	0	0+	11
24	1+	2-	2-	2+	2+	3+	3+	3-	22	1	2+	1+	3-	2	3+	3+	2+	21
25	3+	3-	3-	4-	4-	3	3-	3-	31	3+	3	3-	3	3+	3	3-	3-	31
26	2+	2	1+	3-	2+	3	2	3	19	2	2	1-	2	2-	3	1+	2+	15
27	3	2+	2	2+	2	1+	1	1-	15	3	3-	2-	2	2	0+	1	0+	14
28	1+	3-	2-	1+	1+	0	0+	1+	10	1+	2+	2-	0+	0+	0	0	1	7
29	1	3	4-	3	2-	2-	3-	3	23	1	3	4-	2+	1	1	2	2+	18
30	2+	3+	2	3-	4	3-	2	2+	27	2	3+	2+	3-	4-	2+	2-	3+	25
31	3+	3+	3	3-	3-	4-	3	3	33	4	3	3-	2+	2+	4-	4-	3	34
								Mean	28.2									26.0

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M
21 Feb 1979			66 102
10 Mar			54 101
25 Apr	109		27 148
26 Apr			103 15
13 Aug			53 108
20 Aug			33 100
29 Aug			59 111
18 Sep			100 63
25 Jul 1980			13 100
19 Dec	118	123	63 178
06 Feb 1981			24 116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

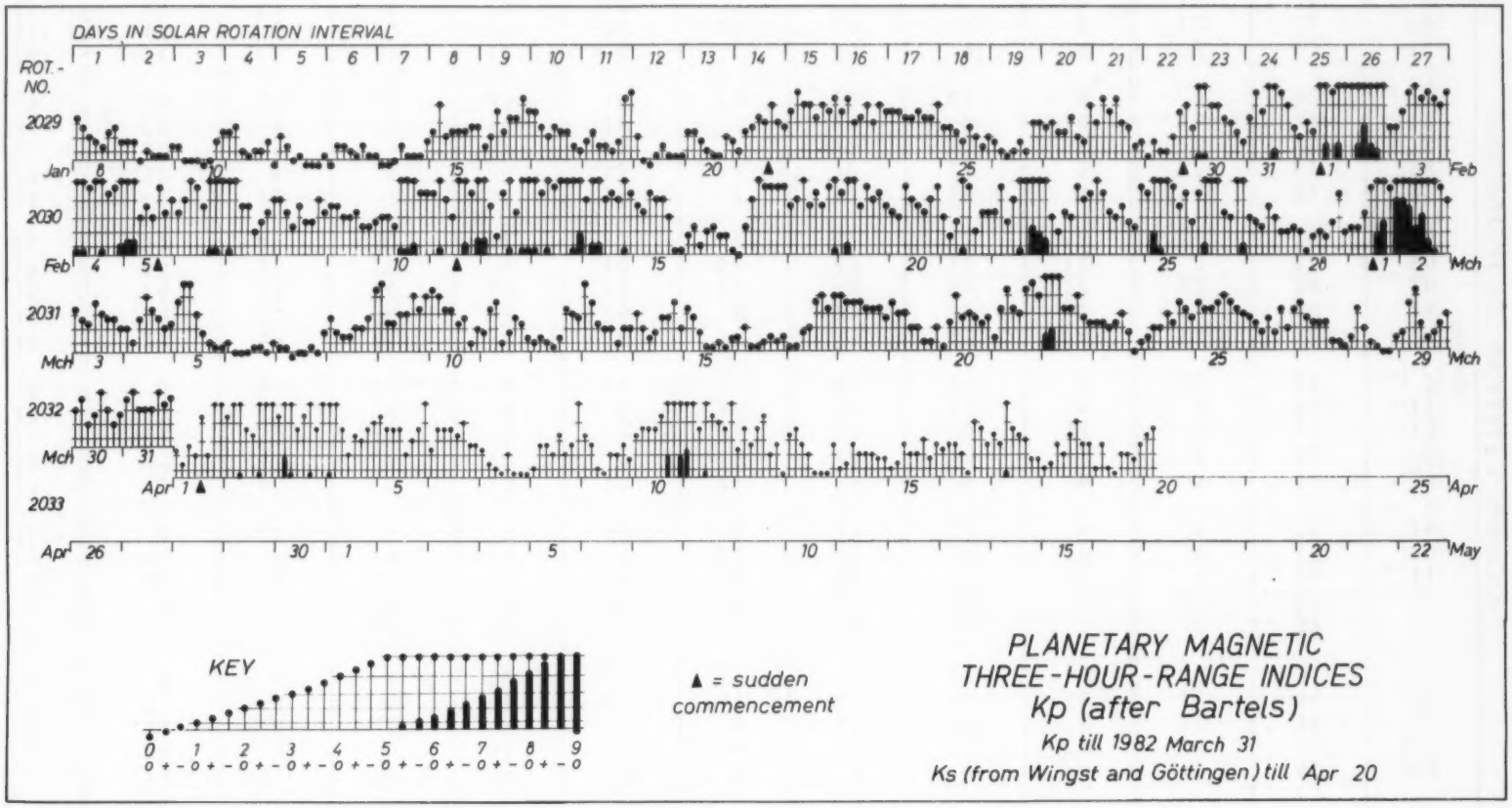
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values>3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAY	1981 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB	MAR
1	23	16	7	17	18	5	9	7	6	9	41	68
2	10	7	7	22	15	18	22	5	9	9	60	107
3	14	5	16	9	18	9	36	8	8	20	35	13
4	11	4	5	9	11	11	17	6	10	12	49	12
5	4	4	6	12	15	17	7	11	9	4	37	16
6	10	5	14	19	14	8	6	9	4	10	39	3
7	9	5	50	14	10	5	32	19	3	12	26	3
8	11	11	16	8	4	10	25	27	15	9	18	11
9	8	39	4	6	7	11	21	4	10	4	15	20
10	8	32	4	4	16	9	27	13	9	4	35	16
11	39	61	6	13	15	21	46	31	6	5	45	10
12	96	13	4	20	9	10	12	39	23	2	41	8
13	121	10	5	9	9	12	17	5	12	4	54	13
14	27	18	4	7	8	10	73	27	6	3	42	11
15	8	54	11	4	13	10	20	20	6	12	18	7
16	13	59	21	8	8	7	8	17	4	17	6	4
17	19	13	10	29	25	4	18	32	7	10	30	14
18	14	57	10	10	23	18	6	26	14	13	34	20
19	45	18	10	9	10	38	23	14	10	3	36	10
20	53	43	10	12	8	9	67	13	6	6	26	12
21	41	12	7	6	14	7	33	15	6	14	21	23
22	33	6	5	24	13	13	72	11	3	27	51	38
23	31	19	5	37	56	4	27	20	6	22	29	8
24	22	18	13	13	28	7	18	9	10	21	24	12
25	19	33	15	134	16	13	18	27	8	9	42	20
26	62	8	14	78	8	32	10	9	6	7	43	11
27	43	6	10	24	25	21	10	4	6	13	12	9
28	13	12	9	8	18	6	19	6	12	17	10	6
29	19	6	33	5	18	14	12	4	32	11		13
30	7	6	14	9	17	15	12	1	30	27		15
31		8		12	15		4		18	34		20
MEAN	23	20	12	19	15	12	23	15	10	12	33	18

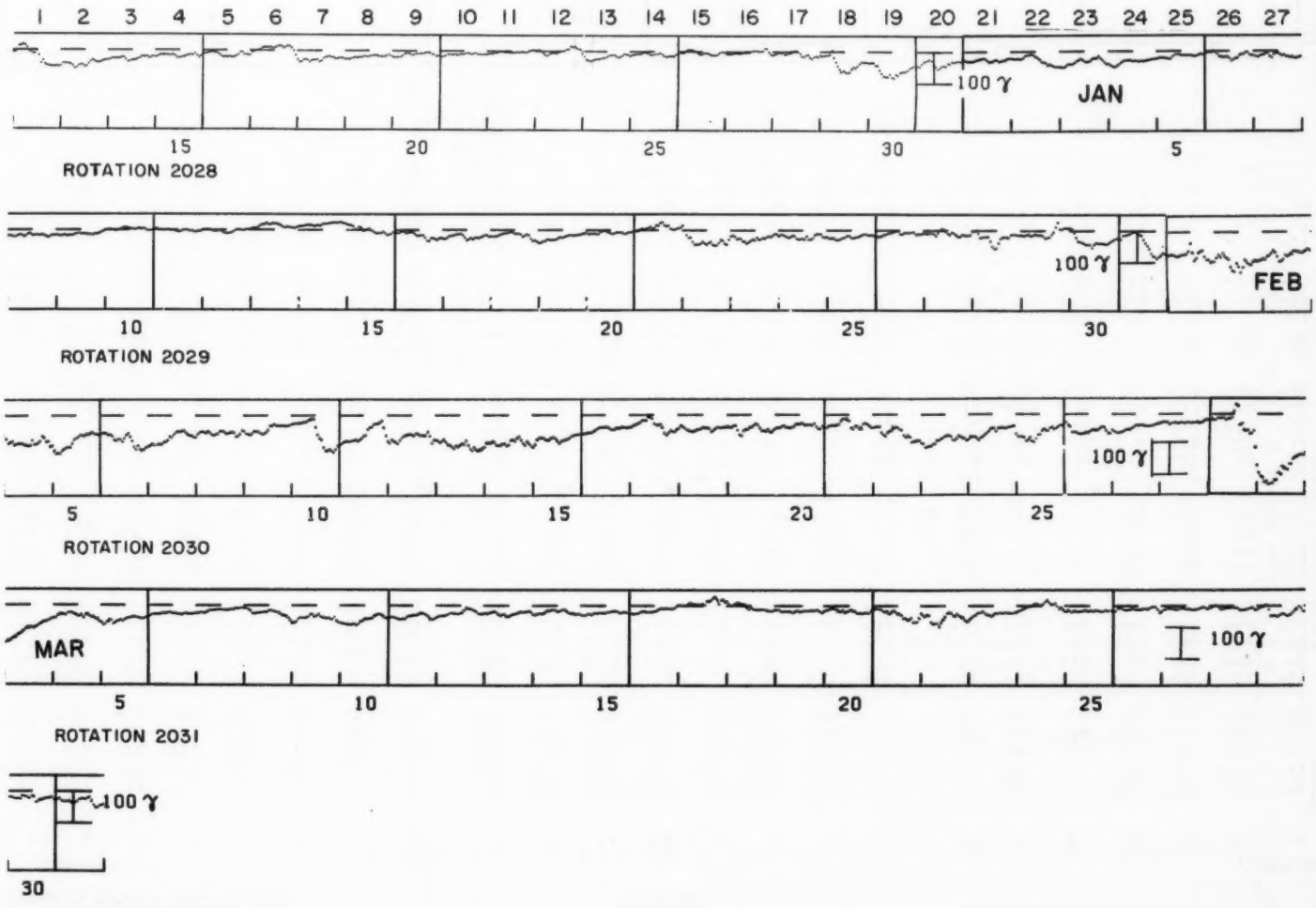
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

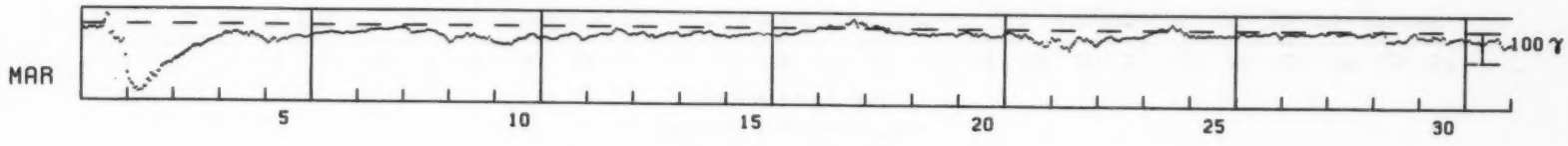
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

MARCH 1982

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-14	-19	-17	-11	-13	-12	-11	-18	-13	-14	-10	8	32	26	-34	-29	-50	-53	-49	-62	-60	-52	-104	-161
2	-165	-195	-199	-213	-209	-219	-216	-216	-206	-204	-182	-189	-164	-169	-173	-155	-155	-139	-133	-129	-126	-125	-127	-117
3	-114	-112	-106	-102	-98	-92	-88	-86	-81	-74	-71	-70	-69	-72	-68	-65	-60	-56	-52	-53	-49	-45	-42	-41
4	-40	-33	-29	-28	-29	-32	-24	-25	-24	-29	-29	-34	-35	-31	-38	-30	-28	-34	-38	-39	-43	-44	-51	-55
5	-62	-59	-51	-45	-48	-59	-55	-50	-48	-46	-50	-44	-41	-40	-38	-37	-36	-38	-40	-42	-42	-41	-37	-35
6	-32	-29	-28	-28	-28	-27	-25	-25	-24	-22	-23	-25	-25	-26	-27	-29	-29	-25	-25	-27	-27	-27	-25	-24
7	-24	-22	-22	-25	-19	-16	-14	-14	-14	-12	-13	-12	-13	-14	-14	-13	-12	-12	-10	-8	-9	-8	-7	-8
8	-9	-12	-17	-25	-26	-24	-22	-23	-22	-20	-22	-17	-15	-18	-19	-20	-21	-26	-32	-31	-35	-40	-47	-55
9	-54	-51	-43	-38	-38	-40	-39	-35	-26	-29	-36	-32	-28	-34	-39	-38	-41	-39	-43	-44	-37	-48	-53	-55
10	-56	-58	-58	-59	-61	-58	-58	-63	-57	-50	-47	-42	-42	-42	-40	-39	-34	-29	-28	-28	-32	-38	-41	-41
11	-37	-37	-38	-41	-43	-44	-41	-43	-36	-32	-33	-30	-31	-31	-27	-25	-24	-27	-31	-37	-44	-44	-41	-36
12	-34	-33	-32	-32	-30	-27	-23	-23	-25	-26	-27	-24	-22	-15	-7	-3	-11	-12	-16	-19	-25	-26	-27	-23
13	-24	-25	-21	-20	-17	-22	-28	-32	-27	-27	-34	-35	-30	-28	-26	-24	-22	-19	-21	-20	-19	-16	-21	-26
14	-30	-27	-25	-26	-26	-21	-16	-15	-14	-13	-14	-19	-18	-14	-13	-13	-20	-24	-27	-24	-28	-27	-26	-30
15	-32	-32	-27	-26	-30	-26	-23	-25	-22	-23	-23	-23	-20	-20	-18	-17	-16	-19	-23	-22	-20	-21	-23	-24
16	-25	-27	-26	-25	-21	-19	-17	-20	-21	-20	-20	-18	-17	-13	-9	-8	-10	-8	-10	-9	-10	-8	-2	4
17	2	0	0	0	6	9	5	3	3	3	2	5	1	15	13	17	24	29	20	5	18	20	12	14
18	4	-1	2	6	9	8	3	4	3	-7	-11	-6	-10	-12	-13	-12	-12	-11	-13	-15	-16	-17	-15	-12
19	-13	-13	-19	-18	-17	-18	-18	-20	-22	-16	-14	-19	-18	-15	-16	-15	-14	-14	-15	-13	-13	-19	-22	-18
20	-13	-12	-8	-7	-9	-11	-16	-19	-13	-21	-18	-15	-12	-17	-17	-23	-24	-24	-24	-22	-21	-24	-18	-12
21	-9	-8	-10	-11	-18	-20	-16	-25	-19	-13	-20	-26	-24	-30	-40	-39	-44	-43	-38	-52	-52	-50	-38	-24
22	-30	-33	-28	-31	-52	-57	-55	-55	-66	-53	-43	-34	-24	-20	-23	-31	-33	-25	-32	-34	-38	-45	-50	-46
23	-33	-33	-30	-24	-21	-20	-17	-25	-28	-30	-33	-29	-23	-25	-22	-22	-23	-21	-22	-22	-23	-22	-21	-19
24	-15	-13	-9	-7	-5	-2	0	3	6	6	1	-1	4	12	17	10	3	3	7	-2	-10	-4	-13	-18
25	-15	-14	-21	-16	-15	-19	-18	-17	-15	-13	-17	-15	-15	-18	-15	-15	-17	-19	-17	-14	-17	-15	-15	-19
26	-16	-8	-7	-8	-12	-14	-12	-11	-9	-8	-11	-11	-11	-10	-8	-8	-11	-7	-3	-3	-4	-11	-21	-17
27	-12	-10	-7	-9	-9	-8	-11	-12	-8	-8	-8	-10	-10	-10	-12	-12	-12	-10	-8	-5	-3	-7	-9	-7
28	-5	0	2	1	-8	-11	-8	-7	-6	-6	-5	-5	-6	-6	-11	-13	-13	-12	-10	-8	-6	-6	-12	-14
29	-8	-4	-3	3	3	-12	-32	-33	-31	-35	-32	-27	-25	-28	-32	-31	-27	-20	-13	-9	-3	-5	-16	-18
30	-17	-19	-22	-23	-22	-22	-12	-15	-16	-19	-22	-13	-17	-35	-33	-26	-27	-24	-22	-20	-20	-18	-25	-28
31	-25	-22	-30	-32	-32	-32	-31	-37	-44	-35	-32	-24	-22	-22	-25	-20	-17	-31	-43	-51	-50	-44	-43	-40



PRINCIPAL MAGNETIC STORMS

MARCH 1982

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
COL	64.6N	01	06--	..	..	..	..	01(6) 02(4,5)	7	410	1780	1380	03	19
SIT	60.0N	01	1140	SC*	- 9 *	55	6	02(4)	8	--	--	870	03	19
WIT	54.2N	01	1138	SC*	- 7	58	0	01(8)	7	72	370	235	03	01
FRD	49.6N	01	1138	SC	- 4	40	- 7	01(5,6,8) 02(1,2,4)	7	55	335	415	05	--
HON	21.1N	01	1109	SC	--	33	16	01(8)	7	8	238	59	03	15
JAI	17.3N	01	1138	SC	- 1.5	45	-13		-	10	305	44	03	02
SHL	14.6N	01	1138	SC	- .2	38	11		-	8	327	47	03	02
UJJ	13.5N	01	1138	SC	- .8	53	-11		-	9	287	46	03	02
ABG	09.5N	01	1138	SC	- 1.4	42	-12	01(5)	7	8	292	72	03	02
HYB	07.6N	01	1139	SC	- .7	47	- 4	01(5) 02(4,5)	7	8	316	36	03	01
GUA	04.0N	01	1138	SC	1	49	-16	01(8)	7	10	320	30	02	23
ANN	01.4N	01	1138	SC	- 2.5	66	28		-	9	325	93	03	02
HUA	00.6S	01	1148	SC	1	94	8	01(6)	8	18	732	92	02	22
TRD	01.2S	01	1138	SC	.3	69	81		-	7	331	175	03	02
PMG	18.6S	01	1139	SC	.9	57	48	01(5) 02(4)	7	12	320	110	03	00
HER	33.7S	01	1137	SC*	10	60	67	01(8)	7	71	257	248	02	20
GNA	43.2S	01	1138	SC*	5.0	72 *	35	01(5,6) 02(1,4,5)	6	34	260	290	03	00
KGL	56.5S	01	1136	SC*	5	22	23	01(6,8) 02(1)	9	320	1646	624	03	04
HYB	07.6N	03	1700	..	..	..	..	04(3,4) 05(2)	4	4	108	32	05	13
HYB	07.6N	08	1200	..	..	..	..	09(6,7)	4	5	116	28	10	22
HUA	00.6S	08	1200	..	..	..	..	09(6,7)	5	6	274	45	09	24
HYB	07.6N	12	1300	..	..	..	..	12(6,7) 13(1,2)	3	4	106	21	13	14
GUA	04.0N	13	0104	..	..	..	..	13(1)	5	10	140	30	13	08
HER	33.7S	13	01--	..	..	..	..	13(1)	5	15	32	44	13	04
HYB	07.6N	17	2200	..	..	..	..	18(2)	5	5	110	44	19	15
GUA	04.0N	17	1200	..	..	..	..	17(1)	5	--	110	40	18	20
HUA	00.6S	17	1120	..	..	..	..	17(6,7)	6	8	329	49	18	23
HYB	07.6N	20	0300	..	..	..	..	21(3,5,7)	4	5	144	30	21	21
COL	64.6N	21	06--	..	..	..	..	21(3) 22(2)	6	153	1100	840	22	22
SIT	60.0N	21	05--	..	..	..	..	22(2)	7	--	640	420	22	22
WIT	54.2N	21	1132	SC*	- 1	17	0	22(1)	6	30	165	85	22	08
FRD	49.6N	21	18--	..	..	..	..	22(2)	6	21	95	44	23	--
HYB	07.6N	21	2230	..	..	..	..	22(3)	5	6	153	21	23	15
HUA	00.6S	21	2233	..	..	..	..	22(6)	6	7	244	28	22	23
HYB	07.6N	24	0300	..	..	..	..	24(7)	4	6	130	42	25	23
HUA	00.6S	24	0850	..	..	..	..	24(6,7)	6	7	255	35	24	23
HYB	07.6N	29	1700	..	..	..	..	30(5) 31(3,7)	4	5	168	32	31	23
HUA	00.6S	29	1703	SC*	1	21	3	29(7)	5	8	282	73	31	02

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SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

MARCH 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)

1	11	38	A:NUR WNG WIT NGK HAD DOU CLF HRB MMB AQU ERB COI TOL FRD KAK HTY KNY LNP MPO AMS KGL DUM ; B:ESK

Solar Flare Effects (sfe)

5	08	18	-	08	37	TOL
6	08	03	-	08	07	MPO
7	03	03	-	04	30	MMB KAK HTY KNY LNP
9	08	12	-	08	21	TOL
17	02	39	-	03	00	MMB KAK KNY LNP
21	11	24	-	11	35	WNG
27	03	02	-	03	04	LNP
28	03	06	-	03	09	LNP
30	02	37	-	03	00	MMB KAK HTY KNY
30	05	31	-	06	32	MMB KAK HTY KNY LNP
31	22	22	-	22	50	HTY KNY

Note: The symbol AMS corresponds to the Martin De Vivies Observatory (37°50′ S 77°34′ E) at Amsterdam Island, opened on May 1981 .

RADIO PROPAGATION QUALITY INDICES

MARCH 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	7.7	6.2	7.7	4.4	4.5
2	4.6	4.6	4.6	0.8	0.7
3	6.9	7.3	8.2	6.7	6.3
4	7.5	8.9	8.0	9.3	8.4
5	7.4	8.4	7.5	7.7	8.7
6	8.4	8.0	7.0	8.9	9.9
7	8.2	9.0	7.6	8.6	9.9
8	7.2	8.1	7.1	9.5	9.9
9	7.7	7.6	7.0	7.3	9.1
10	6.9	8.8	6.9	6.3	8.0
11	5.9	8.0	6.8	6.1	7.6
12	6.5	7.9	6.7	7.6	7.4
13	6.2	8.4	7.0	7.5	7.2
14	6.8	7.2	6.4	7.3	7.1
15	7.4	8.5	6.4	6.9	7.6
16	7.1	8.6	5.9	7.2	7.2
17	7.6	8.4	6.6	7.1	8.6
18	6.8	5.2	6.5	4.7	2.6
19	6.7	7.2	6.1	5.7	4.7
20	6.3	6.7	6.4	5.3	3.6
21	5.5	4.7	5.7	4.5	2.6
22	5.1	5.3	6.0	3.9	2.9
23	6.1	5.9	6.4	7.2	5.6
24	6.4	6.9	6.3	6.8	6.5
25	4.4	4.8	6.0	3.8	1.1
26	6.0	6.4	6.0	4.7	3.1
27	6.3	7.4	5.9	6.4	4.1
28	6.2	7.0	5.9	6.7	3.8
29	6.2	6.9	6.2	7.0	5.1
30	5.8	6.1	5.5	7.5	5.0
31	5.5	5.6	5.5	6.4	4.0
MEAN	6.6	7.1	6.5	6.4	5.9

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

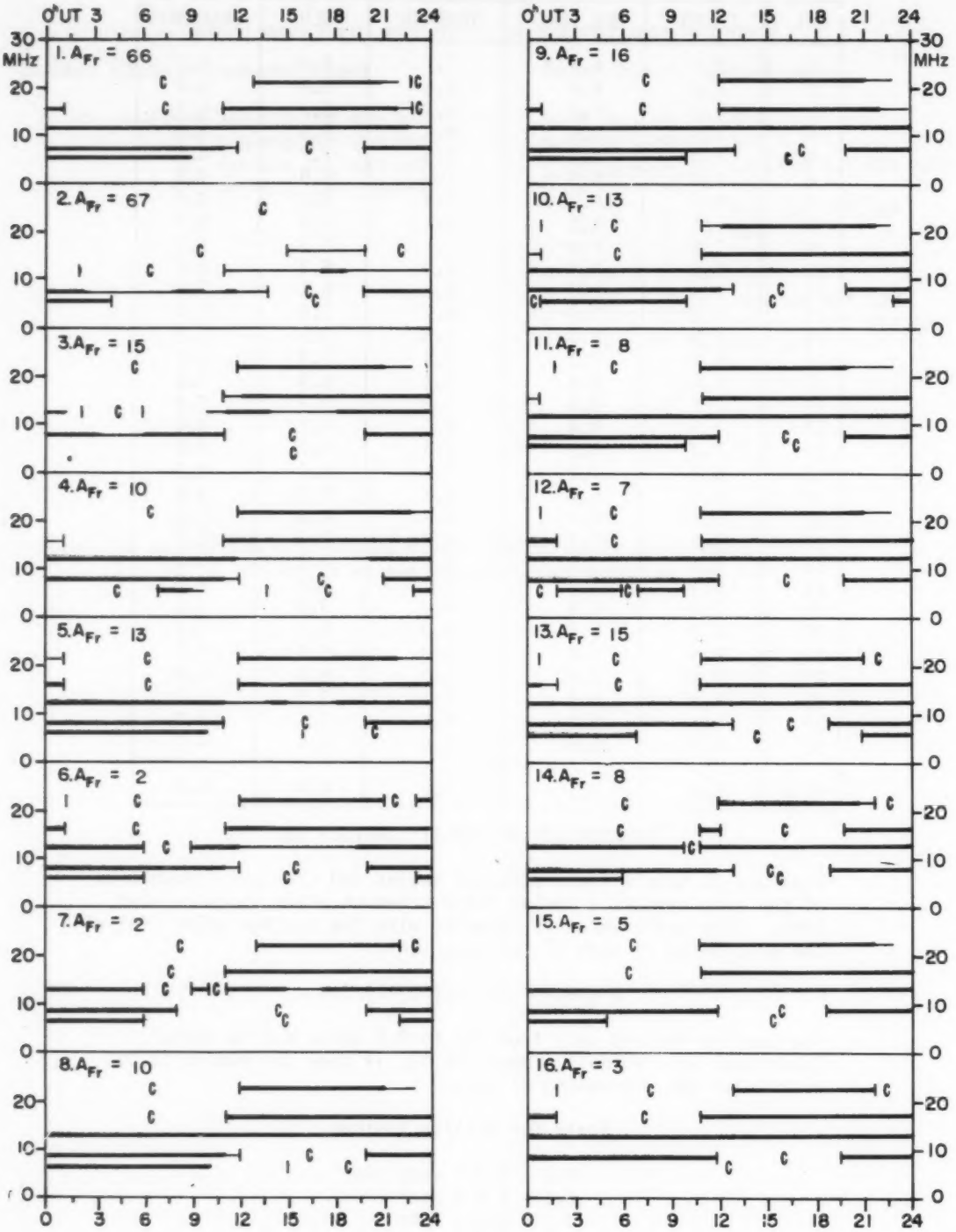
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

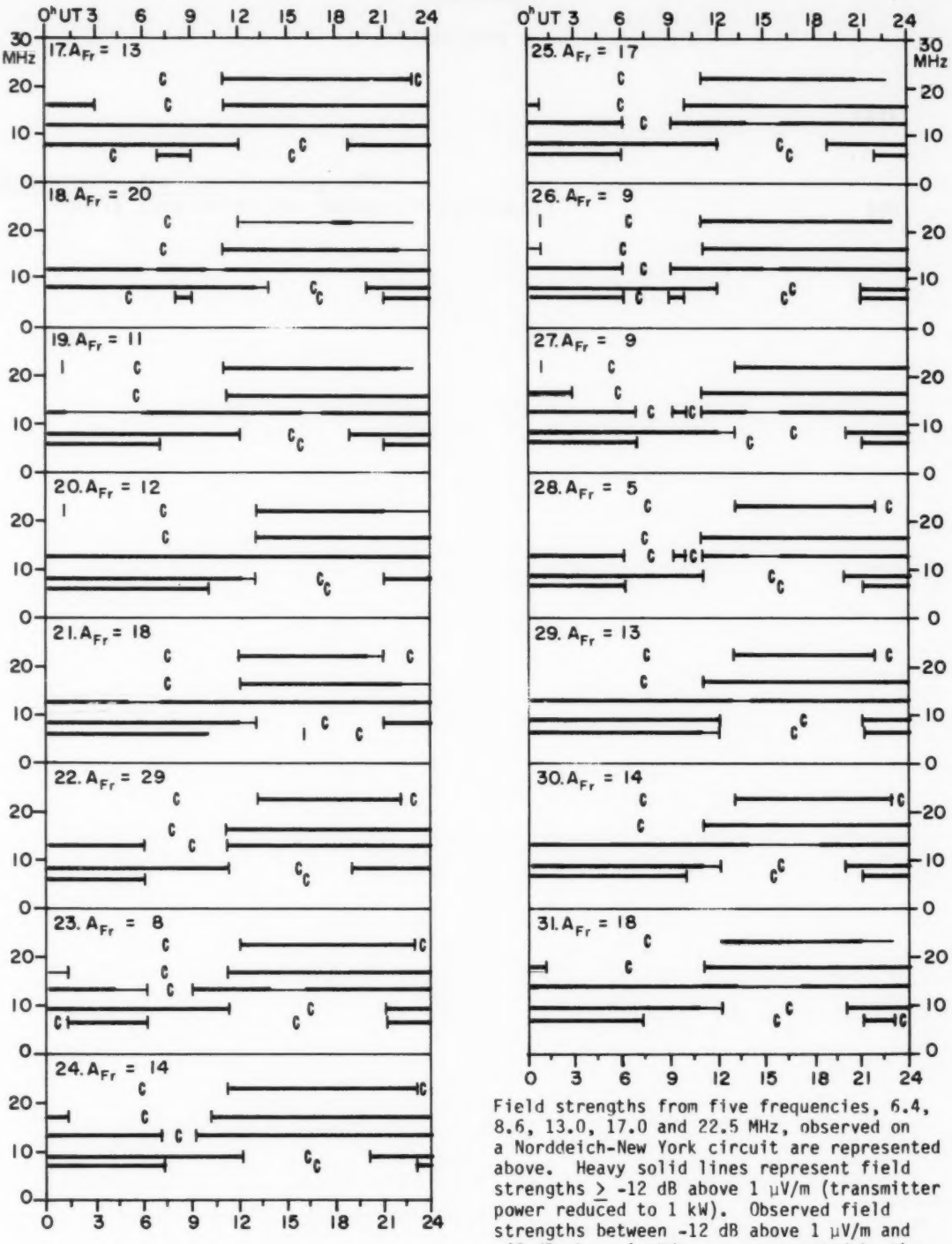
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths $\geq$ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μV/m and -40 dB above 1 μV/m are represented by the fine line.

LATE DATA

Contents

Page

Geomagnetic Indices February 1982
Hourly Equatorial Dst Values (Provisional) 148

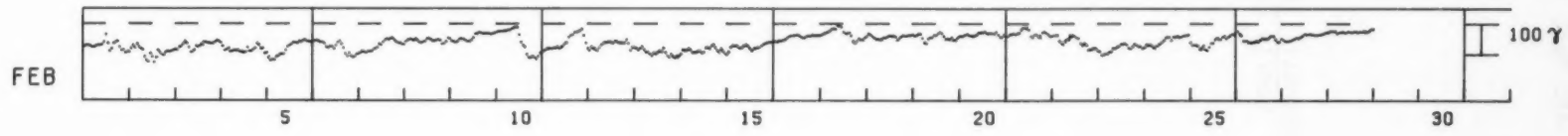
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

FEBRUARY 1982

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-74	-71	-71	-73	-78	-76	-72	-71	-71	-68	-60	-36	-65	-90	-82	-65	-60	-57	-78	-87	-86	-95	-92	-92
2	-80	-72	-79	-67	-77	-82	-86	-110	-121	-125	-98	-109	-127	-111	-87	-96	-101	-103	-93	-89	-92	-89	-87	-83
3	-86	-76	-74	-67	-58	-65	-78	-93	-91	-85	-73	-76	-73	-67	-59	-60	-62	-64	-65	-63	-59	-54	-57	-64
4	-74	-87	-84	-80	-91	-89	-86	-87	-87	-91	-91	-94	-91	-77	-90	-88	-84	-79	-64	-69	-81	-80	-97	-94
5	-111	-120	-117	-118	-109	-105	-100	-98	-98	-86	-75	-71	-67	-60	-61	-64	-56	-59	-55	-51	-57	-57	-60	-57
6	-55	-54	-56	-61	-59	-65	-76	-80	-74	-75	-82	-71	-61	-56	-67	-80	-98	-107	-95	-106	-111	-107	-100	-97
7	-94	-89	-92	-95	-90	-89	-90	-83	-81	-77	-66	-69	-59	-52	-49	-51	-47	-47	-54	-60	-62	-63	-68	-67
8	-58	-52	-49	-51	-55	-49	-54	-60	-62	-58	-56	-49	-47	-51	-56	-56	-52	-51	-54	-66	-64	-57	-46	-49
9	-56	-58	-61	-56	-49	-50	-50	-54	-58	-57	-52	-45	-33	-32	-27	-31	-32	-33	-32	-31	-34	-32	-30	-27
10	-25	-24	-24	-23	-23	-20	-21	-16	-13	-9	-12	-37	-61	-71	-77	-101	-111	-110	-106	-110	-115	-106	-95	-91
11	-88	-83	-81	-80	-82	-79	-79	-76	-81	-77	-72	-64	-62	-44	-38	-36	-28	-27	-26	-21	-17	-33	-84	-82
12	-86	-76	-81	-83	-88	-78	-70	-64	-62	-60	-58	-60	-64	-56	-58	-63	-62	-63	-63	-52	-65	-87	-77	-78
13	-80	-86	-81	-76	-84	-93	-93	-99	-105	-95	-100	-93	-88	-91	-80	-94	-105	-111	-101	-109	-112	-106	-104	-99
14	-86	-86	-88	-81	-86	-94	-94	-94	-90	-89	-96	-93	-79	-77	-81	-72	-68	-73	-88	-94	-82	-89	-97	-101
15	-92	-77	-71	-72	-72	-77	-80	-78	-72	-69	-74	-82	-89	-81	-80	-77	-76	-73	-67	-64	-62	-60	-60	-59
16	-57	-59	-55	-55	-54	-51	-47	-42	-39	-39	-38	-37	-38	-42	-46	-46	-41	-40	-41	-37	-39	-40	-39	-39
17	-36	-32	-30	-27	-23	-17	-16	-18	-6	-7	-11	-27	-32	-32	-30	-40	-57	-64	-56	-48	-52	-53	-46	-42
18	-33	-37	-42	-47	-50	-51	-53	-49	-45	-46	-42	-39	-41	-40	-43	-53	-48	-42	-38	-41	-40	-38	-38	-36
19	-40	-39	-33	-34	-48	-62	-65	-49	-45	-45	-38	-38	-32	-27	-32	-42	-50	-49	-52	-45	-53	-54	-46	-41
20	-41	-40	-37	-34	-39	-39	-42	-39	-37	-29	-29	-28	-25	-31	-32	-31	-32	-33	-27	-37	-44	-43	-36	-41
21	-41	-36	-34	-32	-35	-32	-30	-20	-13	-12	-11	-20	-42	-45	-36	-36	-44	-40	-29	-26	-30	-36	-41	-41
22	-38	-38	-38	-57	-62	-68	-56	-51	-50	-43	-38	-41	-46	-49	-65	-71	-64	-70	-87	-84	-83	-81	-81	-89
23	-91	-103	-101	-98	-99	-93	-90	-81	-81	-76	-73	-68	-66	-65	-70	-80	-82	-74	-67	-70	-75	-75	-82	-76
24	-69	-71	-69	-73	-80	-74	-72	-66	-60	-54	-46	-43	-44	-54	-43	-44	-40	-44	-44	-40	-39	-38	-36	-42
25	-71	-69	-70	-74	-84	-79	-73	-84	-87	-76	-64	-63	-52	-46	-51	-51	-43	-41	-48	-44	-39	-34	-36	-30
26	-24	-33	-40	-56	-56	-56	-60	-62	-60	-61	-56	-60	-53	-47	-49	-50	-48	-42	-40	-40	-51	-60	-60	-49
27	-53	-57	-58	-56	-55	-51	-48	-46	-46	-43	-40	-34	-35	-35	-33	-36	-37	-37	-38	-35	-35	-32	-30	-28
28	-26	-23	-24	-26	-33	-29	-27	-26	-29	-29	-25	-28	-29	-25	-25	-28	-26	-27	-23	-26	-27	-23	-17	-17



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UAG-30 "Catalogue of Data on Solar-Terrestrial Physics," prepared by NOAA Environmental Data Service, Boulder, CO, October 1973, $1.50. Supersedes UAG-11, 15, and 20 catalogs.

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